



CANADA YEAR BOOK

1962

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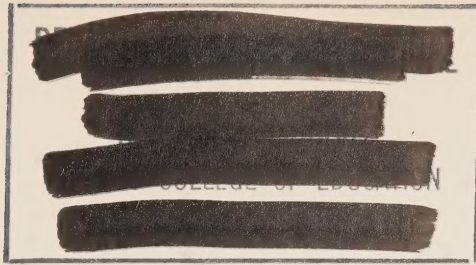
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Canadian Government Travel Bureau Photo

The Trans-Canada Highway winds its way through the Selkirk Mountains just south of Rogers Pass, B.C. This spectacular section was completed in mid-1962 and the dream of a highway stretching unbroken from coast to coast, skirting cities and towns and crossing mountains, muskeg, wilderness and prairie, became a reality—a milestone in the historic struggle for Canadian unity. The Highway was officially opened at the summit of Rogers Pass by Prime Minister Diefenbaker on September 3, 1962.

CANADA YEAR BOOK

1962

OFFICIAL STATISTICAL ANNUAL OF THE
RESOURCES, HISTORY, INSTITUTIONS AND SOCIAL
AND ECONOMIC CONDITIONS OF CANADA

Published by Authority of
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PREFACE

The 1962 edition of the Canada Year Book continues a series of annual publications giving official statistical and other information on almost every measurable phase of Canada's development. As the economy of the country has expanded, the Dominion Bureau of Statistics has endeavoured to present the story of this development, summarizing a great mass of detailed statistical information concisely within the covers of one volume and supplementing it with data from other Departments of the Federal Government and from the provinces.

Special feature articles are presented in each edition of the Year Book. Those in the current issue include: "Economic Regions of Canada" (pp. 17-23); "Social Welfare Expenditures in Canada" (pp. 217-222); "Recent Changes in Canadian Agriculture" (pp. 377-380); "The Petrochemical Industry in Canada" (pp. 609-615); and "Revolution in Canadian Transportation" (pp. 753-758). Certain of the feature articles appearing in previous editions of the Year Book, such as those on Taxation in Canada and the Marketing of Agricultural Products other than Grain, have been considered of continuing importance and have been incorporated into the Year Book as standard material.

All chapters include the latest data available at the time of printing. In this edition, summary population statistics from the 1961 Census, which were not available at the time Chapter III was prepared, appear in Appendix II. Appendix I lists the members of the Eighteenth Ministry as at July 1962 and the Members of the House of Commons as elected at the twenty-fifth General Election of June 18, 1962. The concluding chapter, entitled "Sources of Official Information and Miscellaneous Data", presents special material published in earlier Year Books, federal legislation of the 1961-62 session of Parliament, a Canadian chronology of events from January 1961 to the end of August 1962, and a register of official appointments. The detailed directory of sources of official information and the statistical summary of the progress of Canada normally carried in this Chapter have been omitted from this edition for reasons of economy. Enclosed in the pocket on the inside cover of the volume is a recently completed 140-mile-to-the-inch political map.

The present volume was produced in the Canada Year Book, Handbook and Library Division by Miss Margaret Pink, Associate Editor, and the Year Book staff under the editorship and direction of Dr. C. C. Lingard, Director of the Division. The charts and maps were prepared by L. Tessier of the Drafting Unit and the Surveys and Mapping Branch of the Department of Mines and Technical Surveys.

The co-operation of numerous officials of the various Departments of the Federal and Provincial Governments and of this Bureau in the preparation of material for the Year Book is gratefully acknowledged. Credit by means of footnotes is given where possible either to the persons or to the branches of the public service concerned.

Walter E. Duffell.

DOMINION STATISTICIAN

DOMINION BUREAU OF STATISTICS,
Ottawa, September 1, 1962.

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WEIGHTS AND MEASURES AND OTHER INTERPRETATIVE DATA

In Canada as a rule the Imperial system of weights and measures is followed; an exception is the ton where, unless otherwise stated, the short ton of 2,000 lb. is meant.

Relative Weights and Measures, Imperial and United States

The following list of coefficients may be used to translate amounts expressed in one unit to the other. Where reference is made to Imperial pint, quart and gallon, their equivalent in ounces is also in Imperial measure; likewise United States designations for these quantities are shown in the U.S. equivalent in ounces. The Imperial (or British) fluid ounce and the U.S. fluid ounce are different measures. One Imperial fluid ounce equals 0.96 U.S. fluid ounce and one Imperial gallon equals 1.2 U.S. gallons.

1 Imperial pint=20 fluid ounces	1 short ton=2,000 lb.
1 U.S. pint=16 fluid ounces	1 long ton=2,240 lb.
1 Imperial quart=40 fluid ounces	1 barrel crude petroleum=35 Imperial gallons
1 U.S. quart=32 fluid ounces	1 ounce avoirdupois=0.91146 ounce troy (oz.t.)
1 Imperial gallon=160 fluid ounces	1 statute mile=5,280 feet
1 U.S. gallon=128 fluid ounces	1 nautical mile=6,080 feet
1 Imperial proof gallon=1.36 U.S. proof gallon	

The following weights and measures are used in connection with the principal field crops and fruit; 2.3 bu. of wheat are required to produce 100 lb. of flour.

	<i>Pounds per Bushel</i>		<i>Pounds per Bushel</i>
Grains—		Fruits (standard conversions)—	
Wheat.....	60	Apples.....	45
Oats.....	34	Pears, plums, cherries, peaches, grapes and apricots.....	50
Barley and buckwheat.....	48	Strawberries and raspberries.....(per qt.)	1.25
Rye, flaxseed and corn.....	56		
Mixed grains.....	50		
All others.....	60		

Fiscal Years of Federal and Provincial Governments

The fiscal year of the Federal Government and of each of the ten Provincial Governments ends on March 31. Throughout the Year Book, all figures are for calendar years except where otherwise indicated in text or table headings.

Miscellaneous

Maritime Provinces=Prince Edward Island, Nova Scotia and New Brunswick
 Atlantic Provinces=Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick
 Central Canada=Quebec and Ontario
 Prairie Provinces=Manitoba, Saskatchewan and Alberta
 n.e.s.=not elsewhere specified
 n.o.p.=not otherwise provided for
 psi. (atomic research)=per square inch
 D.B.H. (forestry)=diameter at breast height.

SYMBOLS

The interpretation of the symbols used in the tables throughout this publication is as follows:—

- . . figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- - amount too small to be expressed or where “a trace” is meant.
- ° preliminary figures.
- ’ revised figures.

CHAPTER I.—PHYSIOGRAPHY AND RELATED SCIENCES

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found on the facing page.*

PART I.—GEOLOGY*

North America comprises six main natural regions which are both physiographic and geological because the ages, kinds and structures of the underlying rocks determine the natures of the land surfaces. Knowledge of these regions is important because their geological characteristics have much influence on the suitability of different areas for such activities as agriculture, mining, petroleum production and sports, and contribute as well to the varied scenery of the country. The six regions are: the Canadian Shield, a vast area of ancient rocks that is mainly in Canada; the Interior Plains and Lowlands, the largest area of which extends throughout the mid-Continent from the Gulf of Mexico to the Arctic Ocean; the Appalachian Region, mainly in the United States but also forming an important part of Eastern Canada; the Cordilleran Region, extending along the entire west coast of the Continent; the Atlantic Coastal Plain along the eastern seaboard of the United States; and the Innuitian Region, a mountainous belt in the Arctic Archipelago. Canada includes parts of four of these regions and all of the Innuitian Region, but none of the Atlantic Coastal Plain.

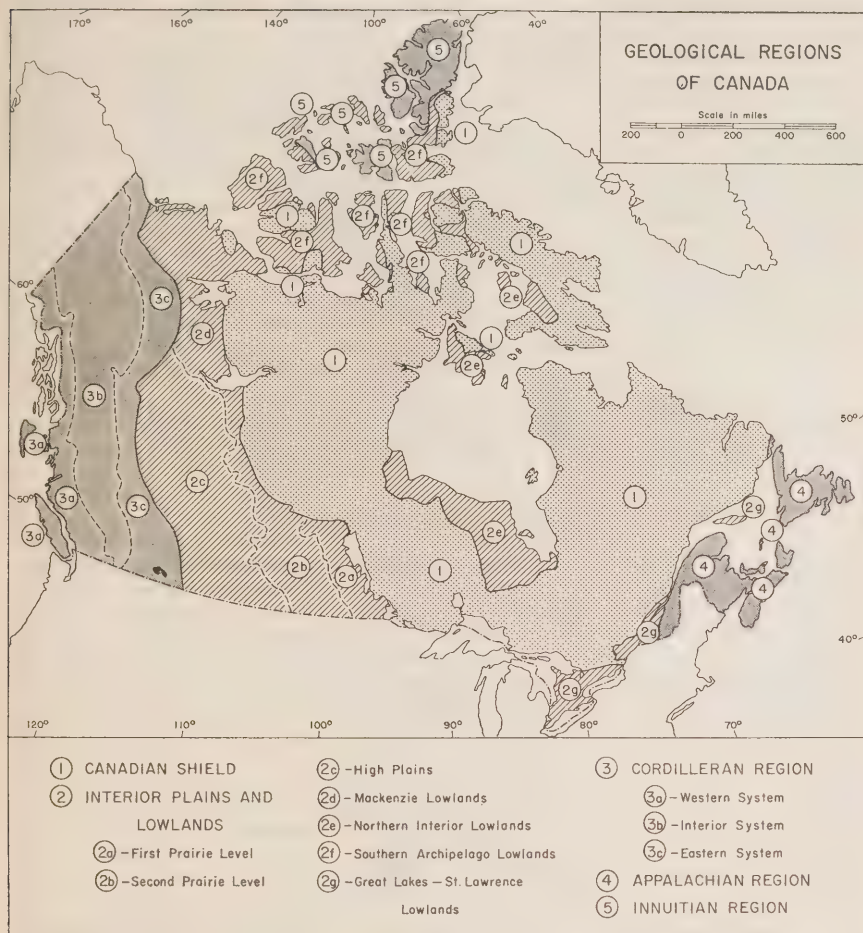
The Canadian Shield, embracing about one-half of the total area of Canada, is a roughly horseshoe or shield shaped terrain of some 1,850,000 sq. miles, having Hudson Bay at its approximate centre. The Shield continues into the United States west and south of Lake Superior, and east of the upper St. Lawrence River where a belt of resistant rocks called the Frontenac Axis forms the Thousand Islands and, to the south, broadens to form the Adirondack area. Far back in geological time the Shield contained many ranges of high mountains

* Prepared by Dr. A. H. Lang and published by permission of the Director, Geological Survey of Canada, Ottawa.

but these have been mainly worn down to a surface of moderate relief consisting of hills, ridges and valleys containing innumerable lakes and streams. Most of the surface is from 600 to 1,200 feet above sea-level but higher uplands form such well-known features as the Laurentian Mountains north of Montreal and the Haliburton Highlands in southeastern Ontario. Along the coast of Labrador and in Baffin Island are mountains rising 5,500 and 8,500 feet, respectively, above the sea. The Shield is a complex assemblage of Precambrian rocks that, as a whole, represent at least five-sixths of the long duration of geological time. Most of the rocks have been subjected to more than one and in some cases several periods of orogeny, resulting in intricate structures, intense metamorphism, widespread igneous intrusions, and alteration of much ancient sedimentary rock to granite and related material. These complexities combined with the absence of fossils, which facilitate the correlation of strata younger than Precambrian, hamper interpretation of the geology of the Shield. Nevertheless, progress has been made and methods developed in Canada have been applied to Precambrian shields of other continents.

Flanking the Shield are large expanses of plains and lowlands underlain by relatively young and soft rocks overlain in many places by good agricultural soils. A notable characteristic of the boundary between the Shield and the lowlands is the presence of large lakes that lie partly in rock basins in the Shield and partly in depressions in the younger strata. The most prominent are Great Bear Lake, Great Slave Lake, Lake Athabasca, Lake Winnipeg and Lake Huron. The largest lowland area is that of the Interior Plains, sometimes called the Great Plains or Western Interior Lowlands. These constitute the prairies of Western Canada and their wooded continuation to the north. The Northern Interior Lowlands include the Hudson Bay Lowlands south of Hudson Bay, the Foxe Basin Lowlands in and near western Baffin Island, and the Southern Archipelago Lowlands which occupy large parts of the more southerly Arctic islands. The Arctic Coastal Plain farther to the north is sometimes classed as a separate physiographic region comparable to the Atlantic Coastal Plain but is here grouped with the other plains and lowlands for simplicity. The Great Lakes-St. Lawrence Lowlands form two important agricultural and industrial areas in southern Ontario, separated by the Frontenac Axis; the more easterly continues in Quebec, on both sides of the St. Lawrence River, and an isolated continuation forms Anticosti Island. Sedimentary strata of Palæozoic and younger ages overlap the Shield to form the Plains and Lowlands. These strata once covered much more of the Shield before being removed by erosion. The Shield continues under the Plains, as is proved by numerous wells drilled for oil or gas in the Great Plains and in southern Ontario having been bottomed in typical Shield rocks, but it is customary to regard the Canadian Shield Region as the part that is exposed or covered by glacial deposits. The overlying strata are undisturbed or gently tilted or flexed, the Shield and the Plains and Lowlands together forming a central continental region that has been relatively stable since Precambrian time, while orogenies were active in the flanking geosynclinal belts now indicated by the Appalachian, Cordilleran and Innuitian mountains.

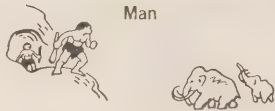

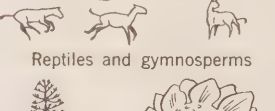



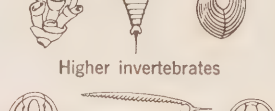
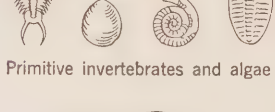

The Canadian Cordilleran Region is a northwesterly-trending belt about 500 miles wide composed of high mountains and lower plateaux and valleys. It comprises southwestern Alberta, all of British Columbia except its northeastern corner, almost all of Yukon Territory and the southwestern part of the Northwest Territories. The individual mountain groups and plateaux are arranged in a complex pattern divisible into three parallel northwesterly-trending zones; in most places these zones are quite distinct and are called the Western, Interior and Eastern Systems. The greater part of the Western System is composed of the high, rugged Coast Mountains along the mainland coast of British Columbia. Along part of the Yukon-Alaska boundary they are flanked to the southwest by the still higher St. Elias Mountains. Separated from the mainland by the Insular Passage are ranges forming Vancouver and Queen Charlotte Islands. The Interior System is a complex group of plateaux and mountains. The Eastern System is divided into the Northern Ranges and the Rocky Mountains, separated by a plain and plateau along the Liard River



near the British Columbia-Yukon boundary. The main features of the Northern Ranges are the British and Richardson Mountains near the Arctic Coast, and the Mackenzie and Franklin Mountains in the western part of the Northwest Territories. The Rockies are composed of high, serrated ranges extending northward from the 49th Parallel; the elevation of the highest peak, Mount Robson, is 12,972 feet. Flanking them on the east are the Rocky Mountain Foothills which form a transition with the Plains. Because the Rocky Mountains, although extensive, are but a relatively small part of the mountains of Western Canada, the popular tendency to apply the name to the entire Canadian Cordillera is inadmissible.

The Cordillera are on the site of a great geosyncline where sediments were laid down at least as early as late Precambrian time, where marine sedimentation continued in places as late as the Upper Cretaceous, and where freshwater sediments were deposited locally during the Tertiary. The principal mountain-building and igneous processes of which good

GEOLOGICAL TIME CHART

ERA	PERIOD		CHARACTERISTIC LIFE	NORTH AMERICAN OROGENIES	TOTAL ESTIMATED TIME IN YEARS	
CENOZOIC	RECENT PLEISTOCENE		<p>Man</p>  <p>Mammals and modern plants</p> 	Cascadian	1,000,000	
	TERTIARY	PLIOCENE MIOCENE OLIGOCENE EOCENE PALEOCENE	<p>Reptiles and gymnosperms</p> 	Laramide		60,000,000
MESOZOIC		CRETACEOUS		Coast intrusions	200,000,000	
		JURASSIC		Palisade		
		TRIASSIC	<p>Amphibians and lycopods</p> 	Appalachian		
PALÆOZOIC		CARBONIFEROUS	PERMIAN		Acadian		200,000,000
	PENNSYLVANIAN					
	MISSISSIPPIAN					
	DEVONIAN					
	SILURIAN	ORDOVICIAN		Taconic		
		CAMBRIAN				
PRECAMBRIAN	PROTEROZOIC	KEWEENAWAN*	Primitive invertebrates and algae	Killarnean*	500,000,000	
		HURONIAN*				
	ARCHEAN	TIMISKAMING*	Nil	Algoman*	1,000,000,000 or more	
		KEEWATIN*		Laurentian*	3,000,000,000 or more	

G.S.C.

*Classical region only

evidences remain began locally in early Mesozoic time, culminated in the western Cordillera in the Nevadan orogeny in late Jurassic and early Cretaceous time, but was not significant in the eastern Cordillera until the Laramide orogeny early in the Tertiary. Thus the western Cordillera were formed much earlier than the eastern, were largely worn down by erosion by the time the Rockies and other eastern mountains were built, and the western part of the region was uplifted at the time of the Laramide orogeny so that renewed erosion could carve the surface into the present mountains and plateaux. The strata in the western Cordillera are intruded by many bodies of igneous rocks, from small to very large in size. Most are granodiorite or diorite but many others are granite, gabbro or other related types; still others are ultrabasic, i.e., composed mainly of iron and magnesium minerals. Most are related to the Nevadan orogeny but some must have been intruded in late Cretaceous or early Tertiary time, and there is incomplete evidence that some are of ages from late Precambrian to Triassic. The intrusions are scattered widely, the largest concentration being the Coast Range Intrusions which form the greater part of the Coast Mountains. Intrusive rocks are rarely exposed in the eastern Cordillera, probably because the mountains there have not been eroded sufficiently to reveal many.

The Appalachian Region is the northern continuation of a long belt of folded strata extending along the eastern side of the United States. It is on the site of a geosyncline that existed mainly in Palaeozoic time in which great thicknesses of sedimentary and volcanic strata were laid down. The northwestern boundary of the region is a long curving fault or zone of faults which extends from Lake Champlain at least as far as the Gulf of St. Lawrence and which causes the curved shape of the northern coast of Gaspé. The strata in the Appalachians have been folded and faulted by successive periods of orogeny along axes that strike northeasterly; thus strata of different kinds and ages and belts of intrusive rocks form northeasterly-trending bands, many of which are responsible for the peninsulas, bays and ridges of the region. Three principal periods of orogeny—the Taconic, the Acadian and the Appalachian—have been recognized. The Taconic occurred at the close of the Ordovician, the Acadian during the Devonian, and the Appalachian at the close of the Palaeozoic. In Canada the Taconic disturbances were fairly widespread, the Acadian were more so, affecting areas that were previously affected by the Taconic and areas that were not, but the Appalachian orogeny, which was a major feature in parts of the United States, was of minor and local importance.

The Inuitian Region is known mainly from reconnaissance surveys. It is underlain by moderately to intensely folded sedimentary, volcanic and metamorphic rocks of various ages, the oldest being probably Proterozoic and the youngest being Tertiary. Folding occurred at different times and in different directions, some before the Silurian period, some in Silurian or Devonian time, some late in the Palaeozoic era, and some in Tertiary time. Five fold-belts have been recognized—Cornwallis, Parry Islands, Central Ellesmere, Northern Ellesmere and Eureka Sound. Granitic intrusions have been found in the Northern Ellesmere belt.

Brief sketches of the geological regions together with an outline of geological processes are given in the 1961 Year Book at pp. 5-14. Further information is supplied by *Geology and Economic Minerals of Canada* (\$2, including Map 1045A) and *Prospecting in Canada*; the latter also contains chapters on the principles of geology and on minerals and rocks. The *Geological Map of Canada* (1045A, 50 cents) and *Canada, Principal Mining Areas* (900A) are also recommended. Map 900A is revised annually; one copy is sent free to residents of Canada and additional copies are 25 cents each. These publications can be ordered from the Director, Geological Survey of Canada,* together with lists of reports and maps of the Geological Survey of Canada on specific topics and areas, for each province. Other publications are available from provincial mines departments.

* A special article covering the history and current activities of the Geological Survey of Canada appears in the 1960 Canada Year Book, pp. 13-19, and is available from the Director in reprint form. A brief outline of the functions of the Survey is given in the Mines and Minerals Chapter of this volume (see Index).

PART II.—GEOGRAPHY*

Canada occupies the northern half of the North American Continent with the exception of Alaska and Greenland, extending in longitude from Cape Spear, Newfoundland, at 52° 37' W, to Mount St. Elias, Yukon Territory, at 141° W, a distance of 88° 23'. In latitude it stretches from Middle Island in Lake Erie, at 41° 41' N, to the North Pole. The northernmost point of land is Cape Columbia on Ellesmere Island, at 83° 07' N. Canada is thus a western and a northern country, a fact of increasing strategic significance.

In shape, Canada resembles a distorted parallelogram with its four corners making important salients. In the north the salient formed by the Arctic Archipelago, which penetrates deep into the Arctic basin, guards the northern approaches to the Continent from Europe and Asia and makes Canada neighbour to the Union of Soviet Socialist Republics. In the south the salient of peninsular Ontario thrusts far into the heart of the United States. In the east the salient of Labrador and the Island of Newfoundland commands the shortest crossings of the North Atlantic Ocean and links Canada geographically with Britain and France. In the west the broad arc of land between Vancouver in southern British Columbia and Whitehorse in Yukon Territory provides the shortest crossings of the North Pacific Ocean between continental North America and the Far East. Canada thus lies at the crossroads of contact with the principal powers and some of the most populous areas of the world.

1.—Approximate Land and Freshwater Areas, by Province or Territory

NOTE.—A classification of land areas as agricultural, forested, etc., is given at p. 24.

Province or Territory	Land	Freshwater	Total	Percentage of Total Area
	sq. miles	sq. miles	sq. miles	
Newfoundland.....	143,045	13,140	156,185	4.1
Island of Newfoundland.....	41,164	2,195	43,359	1.1
Labrador.....	101,881	10,945	112,826	3.0
Prince Edward Island.....	2,184	—	2,184	0.1
Nova Scotia.....	20,402	1,023	21,425	0.6
New Brunswick.....	27,835	519	28,354	0.7
Quebec.....	523,860	71,000	594,860	15.4
Ontario.....	344,092	68,490	412,582	10.7
Manitoba.....	211,775	39,225	251,000	6.5
Saskatchewan.....	220,182	31,518	251,700	6.5
Alberta.....	248,800	6,485	255,285	6.6
British Columbia.....	359,279	6,976	366,255	9.5
Yukon Territory.....	205,346	1,730	207,076	5.4
Northwest Territories.....	1,253,438	51,465	1,304,903	33.9
Franklin.....	541,753	7,500	549,253	14.3
Keewatin.....	218,460	9,700	228,160	5.9
Mackenzie.....	493,225	34,265	527,490	13.7
Canada.....	3,560,238	291,571	3,851,809	100.0

In size, Canada is the largest country in the Western Hemisphere and the second largest country in the world. Its area of 3,851,809 sq. miles may be compared with that of the Union of Soviet Socialist Republics, 8,649,821 sq. miles,† the United States of America (including Alaska and Hawaii), 3,615,213 sq. miles,‡ and Brazil, 3,287,204 sq. miles.† It is more than forty times the size of Britain and eighteen times that of France. The immense size of the country, while encompassing many resources and seeming to afford much scope for settlement, imposes its own burdens and limitations, particularly because much of the land is mountainous and rocky or is under an arctic climate. The developed portion is probably not more than one-third of the total; the occupied farm land is less than 8 p.c. and the currently accessible productive forested land 19 p.c. of the

* Revised or prepared by the Geographical Branch, Department of Mines and Technical Surveys, Ottawa.

† United Nations Statistical Yearbook, 1960.

total. The population of Canada, estimated at 17,814,000 on June 1, 1960, may be compared with 180,670,000* for the United States (including Alaska and Hawaii) (1960) and with 65,743,000* for Brazil (1960).

The milages in Table 2 are another indication of the size of Canada and of the length of communication facilities required between the larger cities, between outlying industrial communities built up around large mining or smelting projects and the nearest cities, and between northern outposts and the supplying cities. Milage given is for the major means of transport used between the points concerned; air milages are used for most transcontinental distances.

2.—Distances between Certain Cities and Other Points of Interest in Canada

NOTE.—The dash used in this table indicates that the distance concerned is of no particular interest. In each case the milage given is for the type of travel most generally used—road (r), rail (R), air (A) or water (w); air milages are given for most transcontinental distances. Water routes are given in nautical miles.

From	To	Halifax	Montreal	Quebec	Ottawa	Toronto	Winnipeg	Edmonton	Vancouver
		miles	miles	miles	miles	miles	miles	miles	miles
St. John's, Nfld.	w	531	w 1,043	w 904	—	w 1,336	—	—	A 3,955
Charlottetown, P.E.I.	H	165	—	—	—	—	—	—	—
Halifax, N.S.	—	—	H 860	H 759	—	H 1,210	—	—	A 3,232
Fredericton, N.B.	H	329	H 531	H 366	—	—	—	—	—
Saint John, N.B.	H	296	H 624	H 459	H 748	H 974	—	—	—
Chibougamau, Que.	—	—	—	R 608	—	—	—	—	—
Montreal, Que.	R	840	—	H 165	H 124	H 350	A 1,419	A 2,225	A 2,668
Quebec, Que.	—	—	H 165	—	H 289	H 515	A 1,436	—	A 2,814
			R 357	R 357	—	—	—	—	—
Schefferville, Que.	—	—	+	+	—	—	—	—	—
			w 430	w 291	—	—	—	—	—
Sept Îles, Que.	—	—	w 430	w 291	—	—	—	—	—
Fort William, Ont.	—	—	w 1,055	w 1,194	R 878	w 762	R 419	R 1,219	R 1,892
Hamilton, Ont.	—	—	H 394	H 559	H 303	H 44	—	—	—
Ottawa, Ont.	—	—	H 124	H 289	—	H 259	A 1,325	A 2,131	A 2,574
Sudbury, Ont.	—	—	—	—	H 313	H 234	R 945	—	—
Toronto, Ont.	w	1,188 ¹	H 350	H 515	H 259	—	A 957	A 1,748	A 2,360
Churchill, Man.	—	—	—	—	—	—	R 992	—	—
Lynn Lake, Ont.	—	—	—	—	—	—	R 723	—	—
Winnipeg, Man.	—	—	—	—	—	A 957	—	R 800	R 1,473
Regina, Sask.	—	—	R 1,764	—	R 1,587	R 356	R 512	R 512	R 1,117
Saskatoon, Sask.	—	—	—	—	—	R 470	R 330	R 330	R 1,095
Uranium City, Sask.	—	—	—	—	—	—	A 456	A 456	A 992
Calgary, Alta.	—	—	—	—	—	R 2,063	R 832	R 194	R 641
Edmonton, Alta.	—	—	R 2,159	—	R 2,041	R 2,007	R 800	—	R 765
Fort St. John, B.C.	—	—	—	—	—	—	—	A 371	R 728
Kitimat, B.C.	—	—	—	—	—	—	—	—	w 420
Prince Rupert, B.C.	—	—	—	—	—	—	—	R 956	w 477
Vancouver, B.C.	A	3,232	A 2,668	R 3,042	R 2,770	A 2,360	A 1,403	R 765	—
Victoria, B.C.	A	3,279	—	—	—	—	—	—	w 81
Dawson, Y.T.	—	—	—	—	—	—	A 1,058	A 316	A 615
Whitehorse, Y.T.	—	—	—	—	—	—	—	H 1,287	A 1,056
Frobisher, N.W.T.	—	—	A 1,297	—	—	—	—	A 3,522	A 3,965
Inuvik, N.W.T.	—	—	A 3,543	—	—	—	A 2,140	A 1,318	A 1,854
Yellowknife, N.W.T.	—	—	—	—	—	—	A 1,398	A 656	A 1,192

¹ Via Strait of Canso.

Section 1.—Physical Geography

Subsection 1.—Physiographic Regions

Since structure tends to dominate relief to a remarkable degree even though its effects have been modified by glacial and river erosion or deposition, the main physiographic regions of the country coincide with the geological regions, which are described in Part I on Geology. For a description of the physical structure of the country in its relation to climatic phenomena, reference should be made to a special article on The Climate of Canada appearing in the 1959 Year Book at pp. 23-51.

* United Nations Population and Vital Statistics Report, Oct. 1, 1961.

Subsection 2.—Inland Waters

The inland waters of Canada (not including saltwater areas that are a part of Canada) are extensive, constituting about 7.6 p.c. of the total area of the country. Aside from their basic essentiality to the support of life, Canada's fast-flowing rivers and chains of lakes have had a great bearing on the development of the country and on its economic and social well-being. In the early days of exploration and settlement, they were the avenues of transportation and often the source of subsistence. These functions have now diminished in importance; with the exception of the St. Lawrence and certain water routes in the interior and the Far North, the rivers and lakes have assumed other roles in the domestic, industrial, agricultural and recreational life of the people. They still serve as efficient carriers of pulp-wood from the forests to the mills and their waters are harnessed to provide power for industry or are dammed and diverted to irrigate and bring life to otherwise waste land.

The inland waters of Canada are best studied by segregating the main drainage basins. The Atlantic drainage basin is the most important, being dominated by the Great Lakes-St. Lawrence system which drains an area of approximately 678,000 sq. miles and forms an unequalled navigable inland waterway through a region rich in natural and industrial resources. From Duluth, Minn., at the head of Lake Superior to Belle Isle at the entrance to the Gulf of St. Lawrence the distance is 2,280 miles. The entire drainage area to the north of the St. Lawrence and the Great Lakes is occupied by the southern fringe of the Canadian Shield—a rugged, rocky, plateau region from which tributary rivers tumble over the edge of the Shield. These rivers, as well as the St. Lawrence itself, provide the electric power necessary to operate the great industries of the area. South of the St. Lawrence, the smaller rivers are important locally. The St. John, for instance, drains a fertile area and provides most of New Brunswick's hydro power.



The Hudson Bay drainage basin, though the largest in area, is the least important economically. Only the Nelson and Churchill Rivers have power potential within economical distance of settled areas. The two main branches of the Saskatchewan River, tributary to the Nelson, drain one of Canada's great agricultural regions and are now the bases of important irrigation projects.

The Arctic drainage basin is dominated by the Mackenzie, one of the world's longest rivers, which flows 2,635 miles from the head of the Finlay River to the Arctic Ocean and drains an area in the three westernmost provinces of approximately 700,000 sq. miles. Except for a 16-mile portage in Alberta, it is possible for steamboats to navigate from the end of steel at Waterways on the Athabasca River to the mouth of the Mackenzie, a distance of 1,700 miles.

The rivers of the Pacific basin rise in the mountains of the Cordilleran Region and flow to the Pacific Ocean over tortuous, precipitous courses, rushing through steep canyons and tumbling over innumerable falls and rapids. They provide power for large hydro developments and in season swarm with salmon returning inland to their spawning grounds. The major rivers of the basin are the Fraser which rises in the Rocky Mountains and toward its mouth flows through a rich agricultural area, the Columbia which is an international river with a total fall of 2,650 feet during its course and has thus a tremendous power potential, and the Yukon River which is also an international river but, though the largest on the Pacific slope, is at present relatively unimportant economically.

Table 3 lists the principal rivers of Canada and their tributaries. The tributaries and sub-tributaries are indicated by indentation of names; thus the Ottawa and other rivers are shown as tributary to the St. Lawrence, and the Gatineau and other rivers as tributary to the Ottawa.

3.—Lengths of Principal Rivers and Their Tributaries

Drainage Basin and River	Length miles	Drainage Basin and River	Length miles
Flowing into the Atlantic Ocean		Flowing into the Atlantic Ocean—concluded	
St. Lawrence (to head of St. Louis, Minn.)	1,900	St. Lawrence—concluded	
Ottawa	696	Via the Great Lakes—concluded	
Gatineau	240	Moirá	60
du Lièvre	205	Thessalon	40
Coulonge	135	St. John	418
Madawaska	130	Romaine	270
Rouge	115	Natashquan	241
Mississippi	105	Moisie	210
Petawawa	95	Hamilton	208
South Nation	90	Exploits	153
Dumoine	80	Naskaupi	152
North	70	Canairiktok	139
North Nation	60	Eagle	138
Saguenay (to head of Peribonca)	475	Miramichi	135
Peribonca	280	Marguerite	130
Mistassini	185	Gander	102
Ashuapmuchuan	165		
St. Maurice	325		
Mattawin	100		
Manicouagan (to head of Racine de Bouleau)	310		
Outardes	270	Flowing into Hudson Bay	
Bersimis	240	Nelson (to head of Bow)	1,600
Richelieu	210	Saskatchewan (to head of Bow)	1,205
St. Francis	165	South Saskatchewan	865
Chaudière	120	Red Deer	385
Via the Great Lakes—		Bow	315
French (to head of Sturgeon)	180	Belly	180
Sturgeon	110	North Saskatchewan	760
Grand	165	Red (to head of Sheyenne)	545
Thames	163	Assiniboine	590
Spanish	153	Souris	450
Trent	150	Qu'Appelle	270
Mississagi	140	Winnipeg (to head of Firesteel)	475
Nipigon (to head of Ombabika)	130	English	330

3.—Lengths of Principal Rivers and Their Tributaries—concluded

Drainage Basin and River	Length	Drainage Basin and River	Length
	miles		miles
Flowing into Hudson Bay—concluded		Flowing into the Pacific Ocean—concluded	
Churchill.....	1,000	Columbia (in Canada).....	459
Beaver.....	305	Kootenay (total).....	407
Koksoak (to head of Kaniapiskau).....	660	Kootenay (in Canada).....	276
Kaniapiskau.....	575	Fraser.....	850
Severn (to head of Black Birch).....	610	Thompson (to head of North Thompson).....	304
Albany (to head of Cat).....	610	North Thompson.....	210
Dubawnt.....	580	South Thompson (to head of Shuswap).....	206
Eastmain.....	510	Nechako.....	287
Fort George (to Nichicum Lake).....	480	Stuart (to head of Driftwood).....	258
Attawapiskat.....	465	Chilcotin.....	146
Kazan.....	455	West Road (Blackwater).....	141
Nottaway (to head of Waswanipi).....	400	Skeena.....	360
Waswanipi.....	190	Bulkley (to head of Maxam Creek).....	160
Nelson (to head of Lake Winnipeg).....	400	Stikine.....	335
Rupert.....	380	Alsek.....	260
Red (to head of Lake Traverse).....	355	Nass.....	236
George (to Hubbard Lake).....	345		
Moose (to head of Mattagami).....	340	Flowing into the Arctic Ocean	
Abitibi.....	340	Mackenzie (to head of Finlay).....	2,635
Mattagami.....	275	Peace (to head of Finlay).....	1,195
Missinabi.....	265	Finlay.....	250
Hayes.....	300	Smoky.....	245
Winisk.....	295	Little Smoky.....	185
Whale.....	270	Parsnip.....	145
Harricanaw.....	250	Athabasca.....	765
Great Whale.....	230	Pembina.....	210
Leaf.....	165	Liard.....	755
Flowing into the Pacific Ocean		South Nahanni.....	350
Yukon (mouth to head of Nisutlin).....	1,979	Petitot.....	295
Yukon (Int. Boundary to head of Nisutlin).....	714	Fort Nelson.....	260
Porcupine.....	590	Hay.....	530
Lewes.....	338	Peel (to head of Ogilvie).....	425
Pelly.....	330	Arctic Red.....	310
Stewart.....	320	Slave.....	258
Macmillan.....	200	Twitya.....	200
White.....	185	Back.....	605
Columbia (total).....	1,150	Coppermine.....	525
		Anderson.....	430
		Horton.....	275

The outstanding lakes of Canada are the Great Lakes, although only parts of these are in Canadian territory. The International Boundary between Canada and the United States passes through Lakes Superior, Huron, St. Clair, Erie and Ontario. Details are given in Table 4.

4.—Elevations, Areas and Depths of the Great Lakes

Lake	Elevation Above Sea Level	Length	Breadth	Maximum Depth	Total Area	Area on Canadian Side of Boundary
	ft.	miles	miles	ft.	sq. miles	sq. miles
Superior.....	602.23	383	160	1,302	32,483	11,524
Michigan (U.S.A.).....	580.77	321	118	923	22,400	—
Huron.....	580.77	247	101	750	23,860	15,353
St. Clair.....	575.30	26	24	23	432	270
Erie.....	572.40	241	57	210	9,889	4,912
Ontario.....	245.88	193	53	774	7,313	3,849

There are no tides in the Great Lakes although considerable variation in water levels is caused by strong winds.

Other large lakes of Canada, ranging in area from 9,500 to 12,300 sq. miles, are Lake Winnipeg, Great Slave Lake and Great Bear Lake. Apart from these, notable for size, are innumerable lakes scattered over that major portion of Canada lying within the Canadian Shield. In an area of 6,094 sq. miles, accurately mapped, south and east of Lake Winnipeg, there are 3,000 lakes. In an area of 5,294 sq. miles, accurately mapped, southwest of Reindeer Lake in Saskatchewan, there are 7,500 lakes.

5.—Elevations and Areas of Principal Lakes, by Province

NOTE.—Areas given are for mean water levels. For those reservoirs and lakes for which two elevations are given, HW means high water and LW low water.

Province and Lake	Elevation	Area	Province and Lake	Elevation	Area
	ft.	sq. miles		ft.	sq. miles
Newfoundland—			Ontario—		
Deer.....	12	24	Abitibi (total, 369) part.....	868	313
Gander.....	86	49	Dog.....	1,380	61
Grand.....	270	205	Eagle.....	1,192	140
Melville.....	sea level	1,133	Erie (total, 9,889) part.....	572	4,912
Michikamau.....	1,650	566	Huron, including Georgian Bay		
Red Indian.....	500	70	(total, 23,860) part.....	580	15,353
Victoria.....	700	15	Kesagami.....		90
			La Croix (total, 55) part.....	1,186	25
Nova Scotia—			Long.....	1,025	75
Bras d'Or.....	tidal	360	Manitou, Kenora.....	1,215	60
			Mille Lacs, Lac des.....	1,496	103
New Brunswick—			Minnitaki.....	1,177	72
Grand.....	tidal	65	Nipigon.....	1,852	1870
			Nipissing.....	644	350
Quebec—			Ontario (total, 7,313) part.....	245	3,849
Abitibi (total, 369) part.....	868	56	Rainy (total, 360) part (reser-	HW 1,108	
Albanel.....	1,289	172	voir).....	LW 1,103	291
Baskatong (reservoir).....	HW 732	109	Red.....	1,157	71
Bienville.....	LW 677	109	St. Clair (total, 432) part.....	374	270
Burnt (Brûlé).....	1,400	392	St. Francis, River St. Lawrence		
Evans.....	1,590	56	(total, 88) part.....	154	25
Cabonga (reservoir).....	HW 1,185	66	St. Joseph.....	1,218	187
Champlain (total, 360) part.....	LW 1,169	66	Sandy.....	906	270
Chibougamau.....	95	18	Saul (reservoir).....	1,170	539
Clearwater.....	1,253	88	Saul.....	718	283
d'Iberville.....	790	535	St. Maurice.....	1,039	50
Evans.....	790	260	Stout (Berens River).....	1,342	110
Goéland.....	760	180	Sturgeon (English River).....	602	11,524
Indian House.....	810	125	Superior (total, 32,483) part.....	965	91
Kaniapiskau.....	890	125	Thunagami.....	HW 589	
Kempton.....	1,850	210	Timiskaming (total, 121) part.....	LW 575	55
Kipawa.....	1,372	75	Trout (English River).....	1,294	156
Lower Seal.....	884	125	Trout (Severn River).....	770	264
Manicouagan.....	860	130	Woods, Lake of the (total, 1,695)		
Manuan.....	645	110	part (reservoir).....	1,060	953
Maricourt.....	1,340	100			
Mattagami.....	765	88	Manitoba—		
Minto.....	450	485	Athapapuskow.....	956	104
Mistassini.....	1,220	840	Atikameg.....	855	112
Nichikun.....	1,737	150	Beaverhill.....	651	70
Oiga.....	785	50	Cedar.....	830	517
Payne.....	430	230	Cormorant.....	840	174
Pipmakan.....	HW 1,305	90	Cross (Nelson River).....	679	274
Pletipi.....	LW 1,275	138	Dauphin.....	853	200
Quinze, des.....	HW 867	55	Dog.....	815	64
St. Francis, River St. Lawrence	LW 857		Egawney.....	585	319
(total, 88) part.....			Gods.....	922	53
St. John.....	154	63	Goose.....	850	181
St. Louis.....	321	414	Granville.....	744	550
St. Pierre (Peter).....	69	57	Island.....	1,156	31
Simard.....	11	142	Kamuchawie (total, 57) part.....	966	29
Timiskaming (total, 121) part.....	859	73	Kipahigan (total, 60) part.....	697	65
Two Mountains.....	HW 575	66	Kiskitto.....	710	99
Waswanipi.....	LW 589	66	Kiskittogisu.....	920	138
	73	63	Kississing.....	812	1,817
	830	75	Manitoba.....	838	154
			Molson.....		525
			Moose.....		

5.—Elevations and Areas of Principal Lakes, by Province—concluded

Province and Lake	Elevation ft.	Area sq. miles	Province or Territory and Lake	Elevation ft.	Area sq. miles
Manitoba —concluded			Alberta —concluded		
Namew (total, 80) part.....	872	8	Cold (total, 138) part.....	1,756	92
Northern Indian.....	760	150	La Biche.....	1,784	94
Nueltin (total, 850) part.....	920	270	Lesser Slave.....	1,892	461
Oxford.....	612	155	Mamawi.....	695	64
Paint.....	615	54	Peerless.....	2,269	75
Pelican (west of Lake Winnipeg- osis).....	837	80	Primrose (total, 188) part.....	1,964	8
Playgreen.....	712	257	Sullivan (variable).....	2,651	62
Red Deer (west of Lake Win- nipegosis).....	862	100	Utikuma.....	2,115	85
Reed.....	911	78	British Columbia —		
Reindeer (total, 2,467) part.....	1,150	371	Adams.....	1,334	52
St. Martin.....	798	125	Atlin (total, 299) part.....	2,192	298
Setting.....	737	49	Babine.....	2,332	194
Sipiwesk.....	598	201	Chilko.....	3,860	75
Sisipuk (total, 103) part.....	919	71	Eutsuk.....	2,817	96
Southern Indian.....	835	1,060	François.....	2,345	91
Stevenson.....	849	75	Harrison.....	35	87
Swan.....	845	118	Kootenay.....	1,745	168
Talbot.....	845	72	Kotcho.....	1,970	31
Todatara (total, 241) part.....	..	156	Lower Arrow.....	1,370	59
Walker.....	679	62	Okanagan.....	1,123	136
Waterhen.....	829	90	Ootsa.....	2,666	50
Wekusko.....	840	64	Quesnel.....	2,380	100
Winnipeg.....	713	9,465	Shuswap.....	1,135	120
Winnipegosis.....	833	2,103	Stuart.....	2,230	139
Woods, Lake of the (total, 1,695) part (reservoir).....	1,060	69	Tagish (total, 130) part.....	2,152	78
Saskatchewan —			Takla.....	2,260	102
Amisk.....	964	168	Teslin (total, 142) part.....	2,239	58
Athabasca (total, 3,120) part.....	699	2,180	Upper Arrow.....	1,401	88
Besnard.....	1,278	72	Northwest Territories —		
Black Birch.....	1,517	54	Aberdeen.....	135	475
Candle.....	1,621	56	Artillery.....	1,190	153
Canoe.....	1,415	78	Aylmer.....	1,230	340
Churchill.....	1,382	213	Baker.....	30	975
Cold (total, 138) part.....	1,756	46	Clinton-Colden.....	1,230	253
Cree.....	1,570	446	Dubawnt.....	700	1,600
Cumberland.....	871	98	Faber.....	753	163
Deschambault.....	1,072	209	Franklin.....	..	175
Doré.....	1,506	243	Garry.....	..	980
Île à la Crosse.....	1,380	166	Gras, de.....	1,300	345
Kamuchawie (total, 57) part.....	1,156	26	Great Bear.....	390	12,275
Kipahigan (total, 60) part.....	966	31	Great Slave.....	512	10,980
La Plonge.....	1,476	90	Hardisty.....	699	107
La Ronge.....	1,198	552	Hottah.....	640	377
Last Mountain.....	1,606	89	Kaminuriak.....	320	360
Methy Lake (Loche, La).....	1,460	75	La Martre.....	870	685
Montreal.....	1,608	162	Maddougall.....	..	265
Namew (total, 80) part.....	872	72	MacKay.....	1,415	250
Nemeiben.....	1,259	63	Maguse.....	..	540
Peter Pond.....	1,382	302	Marian.....	513	90
Primrose (total, 188) part.....	1,964	180	Nueltin (total, 850) part.....	920	580
Quill.....	1,703	236	Nutarawit.....	..	350
Reindeer (total, 2,467) part.....	1,150	2,096	Pelly.....	365	331
Riou.....	..	75	Point.....	1,200	295
Sisipuk (total, 103) part.....	919	32	Rae.....	748	74
Smoothstone.....	1,573	110	Schultz.....	125	110
Snake.....	1,260	159	Thaolintoa.....	..	160
Tazin.....	1,130	156	Todatara (total, 241) part.....	..	85
Wollaston.....	1,300	796	Yathkyed.....	480	860
Alberta —			Yukon Territory —		
Athabasca (total, 3,120) part.....	699	940	Aishihik.....	3,001	107
Beaverhill.....	2,202	80	Atlin (total, 299) part.....	2,192	1
Buffalo.....	2,566	56	Kluane.....	2,525	184
Calling.....	1,949	55	Kusawa.....	2,200	56
Claire.....	695	545	Laberge.....	2,100	87
			Tagish (total, 130) part.....	2,152	52
			Teslin (total, 142) part.....	2,239	84

Subsection 3.—Coastal Waters*

The coastline of Canada, one of the longest of any country in the world, comprises the following estimated milages:—

Mainland—

Atlantic, 6,110; Pacific, 1,580; Hudson Strait, 1,245; Hudson Bay, 3,155; Arctic, 5,770; total, 17,860 miles.

Islands—

Atlantic, 8,680; Pacific, 3,980; Hudson Strait, 60; Hudson Bay, 2,305; Arctic, 26,785; total, 41,810 miles.

A comprehensive description of the coastal waters of Canada would require information from sciences such as oceanography, marine biology and meteorology. However, the basic factor in any study of the oceanic-continental margin is the physical relief of the sea floor, and the scope of the information presented here is therefore restricted to this and a few salient features of the Atlantic, Arctic and Pacific marginal seas surrounding Canada.

Atlantic.—Along this coastal area, the sea has inundated valleys and lower parts of the Appalachian Mountains as well as those of the Canadian Shield. The submerged continental shelf, protruding seaward from the shore, effects the transition from continental to oceanic conditions. This shelf is distinguished by great width and diversity of relief. From the coast of Nova Scotia its width varies from 60 to 100 miles, from Newfoundland 120 to 50 miles (at the entrance of Hudson Strait), and northward it merges with that of the Arctic Ocean. The outer edge of the shelf, known as the continental shoulder, is of varying depths of from 100 to 200 fathoms before the shelf suddenly gives way to the steep declivity leading to abyssal depths. The over-all gradient of the Atlantic continental shelf is slight but the whole area is studded with shoals, plateaux, banks, ridges and islands and the coasts of Nova Scotia and Newfoundland are rugged and fringed with islets and shoals. Off Nova Scotia the 40-fathom line lies at an average of 12 miles from the shore and constitutes the danger line for coastal shipping. The whole floor of the marginal sea appears to be traversed by channels and gullies cutting well into the shelf.

The main topographical features of the Atlantic marginal sea floor are attributed to glacial origin but land erosion is an important factor. Eroded materials are carried seaward by rivers, ice and wind, and wave action against cliffs and shore banks washes away enormous masses that are deposited over the surrounding sea floor. The topography of the continental sea floor is therefore constantly changing and navigation charts of Canada's eastern seaboard must be continuously revised.

Hudson Bay and Hudson Strait bite deeply into the Continent. Hudson Bay is an inland sea 250,000 sq. miles in area having an average depth of about 70 fathoms; the greatest charted depth in the centre of the Bay is 141 fathoms.

Hudson Strait separates Baffin Island from the continental coast and connects Hudson Bay with the Atlantic Ocean. It is 430 miles long and from 37 to 120 miles wide and its greatest charted depth of 481 fathoms is close inside the Atlantic entrance. Great irregularities of the sea floor are indicated but, except in inshore waters, few navigation hazards have been located.

Arctic.—The submerged plateau extending from the northern coast of North America is a major part of the great continental shelf, surrounding the Arctic Ocean, on which lie all the Arctic islands of Canada, Greenland, and most of the Arctic islands of Europe and Asia. This shelf is most uniformly developed north of Siberia, where it is about 500 miles wide; north of North America it surrounds the western islands of the Archipelago and extends 50 to 300 miles seaward from the outermost islands.

The topography of the floor of the submerged part of this continental margin is only partly explored but sufficient has been charted to indicate, in common with continental shelves throughout the world, an abrupt break at the oceanward edge to the relatively steep

* The Federal Government's oceanographic research program is outlined in Chapter XI on Mines and Minerals, Section 2, Subsection 1.

declivity of the continental slope. This slope borders the western side of the Queen Elizabeth Islands and, from it, deep well-developed troughs enter between the groups of islands. Sills across Davis Strait, Barrow Strait and other channels, on which the depth is about 200 fathoms, interrupt the network of deep troughs and separate the Arctic basin from the Atlantic.

That part of the continental shelf bordering the Arctic Ocean in the vicinity of the Queen Elizabeth Islands is currently the subject of extensive study. Since 1959 a party based at the joint Canadian-United States weather station at Isachsen on Ellef Ringnes Island has been investigating the oceanography, hydrography, submarine geology, gravity, geomagnetic features and crustal seismic properties of the continental shelf area, carrying out physiographic, hydrological, permafrost and glaciological studies on the islands of the region, mapping the nature, distribution and movement of the sea ice, and running basic topographic control surveys. This work is continuing, with a party in the field from March to September each year, and should eventually cover all of the unmapped parts of the shelf between Greenland and Alaska. The region between, and offshore from, Meighen Island and Borden Island has received the first detailed study; the work is being extended to the southwest toward Mould Bay on Prince Patrick Island. The investigations should ultimately yield detailed and accurate information on the physical and chemical composition and dynamic characteristics of the Arctic oceanic waters, the bathymetry of the continental shelf and slope and the straits and sounds of the Archipelago; the topography and structure of the shelf and the nature of its sediments, its underlying rocks and possible mineral resources; the structure and physical characteristics of the northern edge of the North American continental platform and its contact with the Arctic Ocean basin, the factors controlling the development of the Arctic landscape and the evolution of the islands; and the behaviour of sea level, glaciers, sea ice and climate in the recent geological past.

Pacific.—The marginal sea of the Pacific differs strikingly from the other marine zones of Canada. The hydrography of British Columbia is characterized by bold, abrupt relief—a repetition of the mountainous landscape. Numerous inlets penetrate the mountainous coast for distances of 50 to 75 miles. They are usually a mile or two in width and of considerable depth, with steep canyon-like sides. From the islet-strewn coast, the continental shelf extends from 50 to 100 sea miles to its oceanward limit where depths of about 200 fathoms are found. There the sea floor drops rapidly to the Pacific deeps, parts of the western slopes of Vancouver Island and the Queen Charlotte Islands lying only four miles and one mile, respectively, from the edge of the declivity. These great detached land masses are the dominant features of the Pacific marginal sea. As is to be expected in a region so irregular in hydrographic relief, shoals and pinnacle rocks are numerous, necessitating cautious navigation. A grave menace to coastal shipping plying the Seymour Narrows between Vancouver Island and the mainland was eliminated on Apr. 5, 1958 when the twin peaks were blasted off Ripple Rock in one of the largest non-atomic explosions created by man. The peaks had reached to within 9 feet and 21 feet of the surface during low water, and had been responsible for the sinking and damaging of some 114 vessels during the preceding 80 years. Their presence caused treacherous disturbances and whirlpools to form as the ocean tides rushed through the Narrows, and only the most highly powered vessel would attempt to navigate the channel during any period other than the 20 to 40 minutes of slack water between tides. The blast increased the clearance to 47 feet and 69 feet at low water and the channel is now navigable at all times.

Subsection 4.—Islands

The largest islands of Canada are in the north and all experience an Arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83°07'N. Those in the District of Franklin lie north of the mainland of Canada and are generally referred to as the Canadian Arctic Archipelago; those in the extreme north—lying north of the M'Clure Strait-Viscount Melville Sound-Barrow Strait-Lancaster Sound water passage—are known as the Queen Elizabeth Islands.

On the West Coast, Vancouver Island and the Queen Charlotte Islands are the largest and the most important but the coastal waters are studded with many small rocky islands.

The Island of Newfoundland forming part of the Province of Newfoundland, the Province of Prince Edward Island, Cape Breton Island forming part of the Province of Nova Scotia, Grand Manan and Campobello Islands forming part of the Province of New Brunswick, and Anticosti Island and the Magdalen group included in the Province of Quebec are the chief islands off the East Coast.

Notable islands of the inland waters include Manitoulin Island (1,068 sq. miles in area) lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

6.—Islands over 2,000 Square Miles in Area

Island	Area	Island	Area
	sq. miles		sq. miles
Arctic Ocean—		Arctic Ocean—concluded	
Baffin	183,810	Bylot.....	4,200
Ellesmere.....	82,119	Prince Charles.....	2,500
Victoria.....	81,930	Cornwallis.....	2,670
Banks.....	23,230	Amund Ringnes.....	2,515
Devon.....	20,861		
Melville.....	16,141	Atlantic Ocean—	
Axel Heiberg.....	15,779	Newfoundland.....	42,734
Southampton.....	15,700	Cape Breton.....	3,970
Prince of Wales.....	12,830	Anticosti (Gulf of St. Lawrence).....	3,043
Somerset.....	9,370	Prince Edward.....	2,184
Prince Patrick.....	6,081		
Bathurst.....	6,041	Pacific Ocean—	
Ellef Ringnes.....	5,139	Vancouver.....	12,408
King William.....	4,870		

Subsection 5.—Mountains and Other Heights

The predominant geographical feature in Canada is the Great Cordilleran Mountain System which contains many peaks over 10,000 feet in height. The highest peak in Canada is Mount Logan in the St. Elias Mountains of Yukon Territory, which rises 19,850 feet above sea level. The highest elevations in all parts of the country are shown in Table 7 in feet above mean sea level.

7.—Principal Heights in each Province and Territory

NOTE.—Certain peaks, indicated by an asterisk (*), form part of the line of demarcation between political subdivisions. Although their bases technically form part of both areas, they are listed only under one to avoid duplication.

Province and Height	Elevation	Province and Height	Elevation
	ft.		ft.
Newfoundland		Newfoundland—concluded	
Long Range—		Central Highlands—	
Lewis Hills.....	2,673	Main Topsail.....	1,822
Gros Morne.....	2,651	Mizzen Topsail.....	1,761
Mount St. Gregory.....	2,338	Torngats—	
Gros Pate.....	2,115	Cirque Mountain.....	5,500
Blue Mountain.....	2,085	Mount Eliot.....	4,560
Table Mount.....	1,700	Mount Tetragona.....	4,510
Blue Hills of Coteau—		Blow-Me-Down Mountain.....	3,880
Peter Snout.....	1,690	Mount Razorback.....	3,660
Butter Pot.....	950	Mount Sir Donald.....	1,890
Red Hill.....	700	Cape Chidley.....	1,500
		Kaunajets—	
		Bishop's Mitre.....	2,259

7.—Principal Heights in each Province and Territory—continued

Province and Height	Elevation	Province and Height	Elevation
	ft.		ft.
Nova Scotia		Alberta—concluded	
Ingonish Mountain.....	1,392	Rockies—concluded	
Creignish Hills (at Creignish).....	850	The Twins (S Peak).....	11,675
Cobequid Mountains (at E Mapleton).....	840	Mount Temple.....	11,636
North Mountain (4 miles NE of Annapolis).....	590	Mount Kitchener.....	11,500
South Mountain (at Annapolis).....	515	*Mount Lyell.....	11,495 ¹
New Brunswick		*Mount Hungabee.....	11,457 ¹
Mount Carleton.....	2,690	*Mount Athabasca.....	11,452
Green Mountain.....	1,596	*Mount King Edward.....	11,400 ¹
Moose Mountain.....	1,490	Stutfield.....	11,400
Quebec		Mount Brazee.....	11,386
Appalachians—		*Mount Victoria.....	11,365 ¹
Mount Jacques Cartier (Shickshocks)....	4,160	*The Snow Dome.....	11,340 ¹
Mount Richardson.....	3,885	*Mount Joffre.....	11,316 ¹
Barr Mountain.....	3,775	*Mount Deltaform.....	11,235 ¹
Mount Logan.....	3,700	*Mount Lefroy.....	11,230 ¹
Mégantic Mountain.....	3,625	*Mount Alexandra.....	11,214 ¹
Mount Albert.....	3,550	*Mount Sir Douglas.....	11,174 ¹
Bayfield Mountain.....	3,470	Woolley.....	11,170
Mattawa Mountain.....	3,370	*Lunette Peak.....	11,150 ¹
Roundtop (Sutton Mountains).....	3,175	Mount Hector.....	11,135
Hereford Mountain.....	2,760	Diadem Peak.....	11,060
Orford Mountain.....	2,750	Mount Edith Cavell.....	11,033
Pinnacle Mountain.....	2,150	Mount Chown.....	10,930
Brome Mountain.....	1,800	Mount Wilson.....	10,631
Shefford Mountain.....	1,725	Clearwater Mountain.....	10,420
Shield—		Mount Coleman.....	10,262
Mount Tremblant.....	3,150	Eiffel Peak.....	10,101
Mount Ste. Anne.....	2,625	Pinnacle Mount.....	10,072
Mount Sir Wilfrid.....	2,569	Mount Fryatt.....	10,026
Monteregian Hills—		Mount Rundle.....	9,838
St. Hilaire Mountain.....	1,350	The Three Sisters.....	9,744
Yamaska Mountain.....	1,350	Mount Eisenhower.....	8,750
Rougemont.....	1,200	Mount Edith.....	8,370
Mount Johnson.....	750	British Columbia	
Mount Royal.....	750	Vancouver Island Range—	
Ontario		Mount Albert Edward.....	6,968
Tip Top Hill.....	2,120	Mount Arrowsmith.....	5,960
Mount Batchawana.....	2,100	Coast Range—	
Niagara Escarpment—		Mount Waddington.....	13,260
Ossler Bluff.....	1,700	Tiedemann.....	12,000
Caledon Mountain.....	1,400	Mount Tatlow.....	10,050
Blue Mountain.....	1,250	Skihist Mountain.....	9,660
High Hill.....	1,150	Crown Mountain.....	6,060
Mount Nemo.....	1,000	St. Elias Mountains—	
Manitoba		*Mount Fairweather.....	15,300 ²
Duck Mountain.....	2,727	*Mount Root.....	12,860 ²
Porcupine Mountain.....	2,700	Columbia Mountains—	
Riding Mountain.....	2,000	Monashee—	
Saskatchewan		Mount Bezbie.....	8,956
Cypress Hills (Summit).....	4,810	Storm Hill.....	5,300
Wood Mountain (West Summit).....	3,371	Selkirks—	
Wood Mountain (East Summit).....	3,347	Mount Sandford.....	11,590
Vermilion Hills.....	2,500	Mount Wheeler.....	11,033
Alberta		Selwyn.....	11,023
Rockies—		Mount Dawson.....	11,020
*Mount Columbia.....	12,204 ¹	Adamant Mountain.....	10,980
The Twins (N Peak).....	12,085	Grand Mountain.....	10,842
Mount Forbes.....	11,902	Mount Sir Donald.....	10,818
Mount Alberta.....	11,874	Iconoclast Mountain.....	10,630
*Mount Assiniboine.....	11,870 ¹	Mount Rogers.....	10,525
		Purcells—	
		Mount Delphine.....	11,076
		Nelson Peak.....	10,772
		Rockies—	
		Mount Robson.....	12,972
		Clemenceau.....	12,001
		Mount Goodsir.....	11,686
		Mount Bryce.....	11,507
		Resplendent.....	11,240
		Mount King George.....	11,226

For footnotes, see end of table, p. 17.

7.—Principal Heights in each Province and Territory—concluded

Province or Territory and Height	Elevation	Territory and Height	Elevation
	ft.		ft.
British Columbia—concluded		Yukon Territory—concluded	
Rockies—concluded		St. Elias Mountains—concluded	
Consolation.....	11,200	Mount Steele.....	16,440
The Helmet.....	11,160	Mount Wood.....	15,880
Whitehorn Mountain.....	11,101	*Mount Vancouver.....	15,700 ³
Mount Huber.....	11,051	*Mount Hubbard.....	14,950 ³
Geikie.....	11,016	Mount Walsh.....	14,780
Bush.....	11,000	*Mount Alverstone.....	14,500 ³
Freshfield.....	10,945	McArthur Peak.....	14,400
Mount Mummary.....	10,918	Mount Augusta.....	14,070
Mount Vaux.....	10,881	Strickland.....	13,818
*Mount Ball.....	10,865 ¹	Mount Newton.....	13,811
Mount Sir Alexander.....	10,740	Mount Cook.....	13,760
Churchill Peak.....	10,500	Mount Craig.....	13,250
Mount Stephen.....	10,495	Badham.....	12,625
Cathedral Mountain.....	10,464	Mount Malaspina.....	12,150
Mount Gordon.....	10,346	Mount Jeannette.....	11,700
President.....	10,287	Baird.....	11,375
Mount Odaray.....	10,175	Mount Seattle.....	10,070
Mount Laussedat.....	10,035		
Mount Burgess.....	8,473		
Yukon Territory		Northwest Territories	
St. Elias Mountains—		Franklin Mountains—	
Mount Logan.....	19,850	Mount Delthore.....	6,800
*Mount St. Elias.....	18,008 ³	Mount Clark.....	4,733
Mount Lucania.....	17,150	Mount Rawlinson.....	5,000
King Peak.....	17,130	Nelson Head.....	1,000
		Mount Pelly.....	675

¹ Part of the Alberta-British Columbia boundary.² Part of the British Columbia-Alaska boundary.³ Part of the Yukon-Alaska boundary.

Section 2.—Economic Geography

The main physical and economic features of each of the political divisions of Canada—the provinces and territories—are described briefly in the 1956 Year Book at pp. 12-17 and are also covered in their relation to climate in the 1959 edition at pp. 23-51. However, the economic development of the country, based in the first instance on physical features and later on other factors, has formed regions quite distinct from the political divisions. These economic regions are described in the following special article.

ECONOMIC REGIONS OF CANADA*

The map of Canada that is most familiar shows the country divided into provinces and territories—in other words, a political map. Almost as familiar, perhaps, is the map of Canada that shows topography—the distribution of the mountains, plains and plateaux, and usually also the lakes and principal river systems. Neither of these maps, however, shows the relative economic importance of the various parts of Canada nor the different emphasis which the economy has in different parts of the country. The key to these differences lies in the distribution of population, for this sums up all other factors in terms of human ends and means. The outstanding feature of the distribution of population in Canada has always been its unevenness. Today, Montreal and Toronto each has well over a million people in a rather small metropolitan area, while in the Northwest Territories there are but 23,000 persons scattered over more than a million and a quarter square miles. The city of Ottawa alone, with a population of over 268,000, has more than ten times as many people as the whole of the Northwest Territories. Thus, 90 p.c. of the people of Canada live on 10 p.c. of the land. The larger part of the population is distributed over a

* Prepared by Dr. N. L. Nicholson, Director, Geographical Branch, Department of Mines and Technical Surveys, Ottawa.

fairly narrow strip extending from the Atlantic to the Pacific across the southern part of the country and north of this ecumene lies the sparsely populated or almost uninhabited part. This distribution of population has resulted from differences in the economy of the people which, in turn, stem principally from differences in physical environment. The far northern or arctic portion, a land generally treeless, is different from the sub-arctic where the climate is less rigorous and where forests dominate the landscape. Where the sub-arctic borders on the ecumene, there is a broad transitional zone where the economy of the south intermingles with that of the north. Thus the broad economic regions of Canada form four tiers or festoons—zones running across the country from east to west—but within these primary divisions there are marked differences in physical environment and economic activity as well as differences in the cultural origin of the population, which give rise to differing “communities of interest”. These are shown on the inserted map and the following brief description of each of them brings out the differences.

Arctic Zone

This Zone can be set apart from the remainder of the country because of its treeless nature and its ice cap and tundra climates. It is dry and cold with long, dark winters and short summers. The warmest month does not average above 50°F. and the average January temperatures are from -10°F. to -35°F. The whole area is underlain by permanently frozen ground known as permafrost. It is a zone of treeless plains, covered in summer with grasses, sedges, mosses and many varieties of flowering plants, as well as dwarf species of willow and birch and other forms of tundra vegetation, which form grazing grounds for such animals as the musk-ox and caribou. The direct economic assets of the Arctic Zone are few. It has no trees and therefore no lumbering and, as there is almost no summer (in the southern sense of the word), there is no agriculture. The small, scattered population is serviced by isolated administrative and scientific outposts. The region is almost completely devoid of roads; local travel is by dog team but air travel is increasing and the use of ice-breaking ships is also becoming more important. In reality, the Zone may be considered as being made up of two tiers of three regions.

Queen Elizabeth Islands.—This is the region in the extreme north, whose ice-girt shores make them almost inaccessible by ship. They have been avoided by Eskimos and there are no economic activities in the generally accepted sense. However, many of the islands are of sedimentary rock where oil and natural gas might be found and active exploration for these minerals is taking place. The only permanent settlements are small weather stations and RCMP posts. The Arctic south of Parry Channel may be divided into two regions, between which there is very little intercommunication.

Western Arctic Region.—This region lies west of Boothia Peninsula and Somerset Island. It is serviced chiefly from the west, usually from the Mackenzie Valley, but occasionally from around the coast of Alaska. Most of the inhabitants are Eskimos living on a subsistence basis with hunting and trapping as the mainstay of an elementary commerce.

Eastern Arctic Region.—This region includes Hudson Bay and Strait and Foxe Basin, with the treeless mainland and islands around them. It is supplied from the east, either from Churchill or from the Atlantic and St. Lawrence ports. The extreme east is mountainous and generally more rugged than the west but nearly all of the region is part of the Canadian Shield. Metallic minerals are known to exist but, so far, the only modern economic activity that has resulted from this knowledge is the nickel mine at Rankin Inlet. Two railways lead from the south into the region, terminating at Churchill in Manitoba and Moosonee in Ontario.

Sub-arctic Zone

The Sub-arctic tier of regions immediately to the south of the Arctic Zone has a sub-arctic climate which is a climate of extremes, with very bitter winters and short but surprisingly warm summers. Temperatures range from a record low of -81°F. to a record

high of 103°F. In the short summer, lasting up to 90 days with long periods of sunshine, temperatures rise to an average of over 60°F. Its southern boundary is the northern limit of commercial agriculture; under present demand for land in Canada, these regions are too cold or too rough for any large development of agriculture. They are three in number and each differs from the others in several important respects.

Yukon Region.—This is a region of hills, plateaux and high mountains consisting of large portions of the drainage basins of the Yukon and Liard Rivers. Lying between the Mackenzie region and the Alaska border, it is an almost self-contained unit. There is very little traffic between the Yukon and Mackenzie regions, the main direction of road traffic being NW-SE, a route followed by the Alaska Highway which traverses the region. Whitehorse, the largest settlement, is the transportation centre and is connected by rail to the Pacific port of Skagway in Alaska. Gold was the lure that brought thousands of prospectors to the Yukon in the early part of the present century and, although production has decreased considerably since then, the area is still an important producer of placer gold. Rich deposits of lead-zinc-silver ore occur in the Mayo area, from which a substantial production of these metals is obtained. Coal is mined near Carmacks and asbestos at Cassiar.

Mackenzie Region.—This region is tributary to the northward flowing Mackenzie River, although it does not include the whole of the Mackenzie drainage basin. The region generally has an elevation of less than 1,000 feet above sea level. Most sections of it are very flat and covered with muskegs, swamps and lakes, sometimes interrupted by low limestone escarpments. It is dominated by the Mackenzie River which, unlike many of the other rivers of the country that are characteristically interrupted by rapids and falls, is one of the most magnificent navigable waterways in the world. It flows through an area that is sparsely populated and therefore lacks other easy means of transportation. The only break in navigation in the 1,700-mile stretch from the end of rail at Waterways in Alberta to the Beaufort Sea is 16 miles of rapids in the Slave River south of Fort Smith. Impressive to the end, the Mackenzie River reaches the sea through a maze of channels in the delta which spreads over several hundred square miles. Owing to the great latitudinal extent of the Mackenzie system, there is usually a difference of about three weeks between the time when the southern tributaries are ice-free in early May and the time when the delta channels break up. The fall freeze-up occurs in late October in the delta and in mid-November on the upper Mackenzie. The small settlements are scattered along the waterways. Access is possible to Waterways on the southern fringe by rail from Edmonton and a highway runs from the Peace River country northward to Yellowknife on the north shore of Great Slave Lake and beyond to MacKay Lake. A railway is under construction to Pine Point on the south shore of the lake. Farther northward, transportation is by water or by air. The permanent population is largely Indian. Mining replaced the fur trade as the most valuable industry of the Mackenzie Valley in 1938 and the mineral wealth comes mainly from three products—petroleum, uranium and gold—the latter two being mined in the edge of the Canadian Shield. The principal gold mines are near the town of Yellowknife, which is the largest settlement; Uranium City on Lake Athabasca is the uranium centre; and Norman Wells on the Mackenzie River is the source of oil. When the railway is completed, the development of large lead-zinc deposits at Pine Point is anticipated. The other settlements are little more than fur trading posts but the fur catch of the Mackenzie lowlands is still of importance. The chief fur bearer caught is the muskrat, especially in the Mackenzie Delta. In this area each of the two settlements of Inuvik and Aklavik has attained the size of what would be described as a village in southern Canada.

Central Forest Region.—The Central Forest Region is part of the northern forests or boreal forests of Canada, as are the Yukon and Mackenzie Regions, but it differs from them in that it is not dominated by a single river system and in that it is located mainly on the

Canadian Shield. Consequently, it consists of a network of rivers, lakes and swamps of great use to the Indians who still hunt, trap and fish. Transportation is provided by three widely separated railway systems—the line to Churchill with its important branch to Lynn Lake, the line to Mooseonee, and the line to Schefferville. Water routes along the coasts of Labrador and Hudson Bay also provide access. The most important economic activity in this area is mining, well exemplified by the base-metal mines in western Manitoba from which nickel, copper, cobalt, zinc, gold, silver, lead and other metals are obtained, and the iron mines of Newfoundland–Quebec.

Transitional Zone

This zone of regions is transitional in nature between the under-developed regions to the north and the highly developed regions to the south.

Pacific Transition Region.—Mountains predominate in the Pacific Transition Region but dissected plateaus, narrow river valleys, a fiorded coast and offshore islands are also important features. Because of its coastal location and extreme variation in topography, weather conditions are exceptional. The warm moist air blowing in from the sea drops most of its moisture on the seaward facing slopes of the coast ranges, producing a maritime, humid, equable climate. Dominated by the polar Pacific air mass which is mild and wet in winter and cold and dry in summer. Westerly winds from the ocean keep average temperatures below 40°F. in January and between 55°F. and 60°F. in July. The annual rainfall—mostly in the coastal areas—exceeds 100 inches with a marked winter maximum, but the interior valleys between the mountain ranges are considerably drier and colder. Most of the settlements are along the coast where the combination of sea, rushing rivers and forests provides the basis for fishing and fish processing, power production, lumbering and the processing of pulp and paper. One of the greatest pioneering efforts in Canada was the establishment of the aluminum smelting facilities and the associated settlement at Kitimat. The pioneer highway to Alaska affords relatively safe coastal access and links with the south. Highways traverse the centre of the region, connecting lumbering and agricultural settlements. Mining is important in the southern part of the region, particularly in the northern Vancouver Island and on Texada Island and for gold on the mainland.

Peace River Transition Region.—This region is part of the Interior Plains of Canada. It is the narrow link between the almost empty slopes of the Rockies, the Mackenzie region, the Forested Coast region and the fairly well settled areas of the Prairie region. In the northwest, in the Peace River country, its rolling hills and plains are dotted with lakes and wetlands. The climate is subarctic but although the winters are very cold, most parts have a growing season of about 100 days so that crops will ripen. Indeed, the main pioneer occupation is farming although lumbering is important and sawmills are numerous. Cattle and sheep ranching is carried on in the foothills and in the Peace River area mixed farming has become highly successful. Here the real pioneer has been the scientist who has developed new types of grain that will mature and ripen in a short growing season. The extensive network of roads and railways covering the prairies makes it possible to enter this region along a wide front as settlement advances into the forest. Oil and gas from the Peace River country are moved to market by pipeline by way of either Edmonton or Vancouver.

Eastern Transition Region.—This region is similar to the Prairie Transition Region although agriculture in the whole has been less successful because most of the region is part of the Canadian Shield. There are notable exceptions, however, in the clay belts centred on Kapuskasing, New Liskeard and Tschereau, the soils of which were deposited on the floors of ancient lakes, and in the Lake St. John area. Lumbering is important and there are several large pulp and paper mills in the region but the economy is associated principally



with mining and the smelting and refining of metals. Only a few of the larger operations are mentioned here: the Sudbury area produces some 65 p.c. of the world's supply of nickel, as well as copper, gold, cobalt and a variety of other metals; the area from Timmins to Val d'Or has long been famous as Canada's 'gold belt'; the Steep Rock Lake area west of Lake Superior accounts for a large proportion of Canada's iron ore shipments; the Elliot Lake camp is the largest uranium mining camp in the world; the copper resources of Chibougamau have recently come into prominence; and the smelters at Arvida have placed Canada in the forefront of aluminum production. The region is crossed by transcontinental railways, air routes and highways, and the use of the hinterland for recreational purposes is becoming increasingly important.

The Ecumene

The fourth tier of regions is the area referred to as the Ecumene of Canada, but even within this more intensely occupied belt the population distribution is far from regular. The major centres of the Atlantic Provinces are separated from those of Quebec by the Appalachian Highlands. The densely populated portions of Ontario and Quebec are separated from the prairies by sparsely populated northern Ontario, and the densely populated portion of the Far West is separated from the remainder of the country by the mountains of the Canadian Cordillera. Thus this zone falls into four parts.

Southern British Columbia.—This is part of the series of high parallel ranges of mountains and the resulting system of parallel linear valleys that forms the Canadian Cordillera. Under natural conditions these were very difficult of access, but the construction of railways and highways, often following the same routes, have made travel easier. It is this relative ease of travel that sets aside, as a separate region, the roughly triangular-shaped area bounded by the Canada-United States border, the Rocky Mountains, that portion of the transcontinental railway between Yellowhead Pass and Prince George, and the line from Prince George to North Vancouver; included also is part of Vancouver Island. The mountain ranges give southern British Columbia a variety of climates, ranging from marine west coast (almost Mediterranean) in the extreme southwest to semi-arid in the interior plateaux and deep interior valleys. The mountainous country and the variable climate limit the amount of land suitable for cultivation to narrow strips along the valley floors where specialized crops are grown, sometimes with the aid of irrigation using water from the snow-fed rivers and numerous lakes, as is exemplified by the fruit and vegetable farms of the Okanagan Valley. The best areas of all are the post-glacial delta lands of the lower Fraser Valley, which are intensively utilized, especially for vegetable-growing and dairying. On southern Vancouver Island intensive berry-farming, bulb-growing and dairying are carried on. In the plateau sections of the region, cattle and sheep farming dominate. Lumbering is important throughout the area, the greatest number of sawmills being found in the Vancouver, Victoria and Prince George areas. The region also accounts for nearly 80 p.c. of the lead and 50 p.c. of the zinc produced in Canada, most of it from the Sullivan mine near Kimberley, from which the ore is shipped to Trail for smelting; gold, nickel, copper and silver are also obtained in significant commercial quantities. Almost all of the people of British Columbia live in this region, the greatest concentrations being in the Vancouver and Victoria areas. Much of the processing of the raw materials of the sea, forest, mine and farm are carried on in these two areas; the administrative and educational services are centred there, and they are also the foci of land, sea and air transportation routes.

Prairie Region.—This region forms the southern part of the Interior Plains of Canada. The southeastern portion is a lake-strewn lowland within which lies the Red River Valley, an area covered with some of the most fertile soil in Canada. The eastern limit of this portion is the Manitoba escarpment and west of these hills lie the Saskatchewan plains,

also an area of gentle relief and fertile soil of great depth. Farther west still, the third prairie level, which is more elevated and has more relief than the other levels, merges into the foothills of the Rocky Mountains. This region is subject in winter to the very dry mass of polar continental air, with average January temperatures of around 0°F. The winter cold is moderated in the extreme west from time to time by the Chinook winds. In summer, average July temperatures are around 65°F. and the tropical air produces the chief rains of the area. But the average annual precipitation is only 15 to 20 inches, with less in the southwest, and is extremely variable with periodic droughts. In the northern part of the area, the precipitation effectiveness is highest and supports a 'parkland' vegetation of tall grasses interspersed at intervals with groves of trees. Elsewhere, however, the low precipitation and high evaporation discourage tree growth and the present economy is based on the substitution of grains for the natural grasses—a process aided by the generally level nature of the terrain and the ease with which large-scale agricultural machinery can be used. Normally there is sufficient moisture for rapid growth and the abundant sunshine during the long summer season in this northern latitude quickly ripens the crops. In the areas where precipitation is more precarious, a number of large irrigation projects have been developed which take their water supply from the rivers rising in the mountains to the west. Thus the core of the region is the central grain-growing area, with wheat emphasized in the drier, warmer parts and barley and oats elsewhere. This is flanked by cattle-raising on the west where the land is rougher, and dairying emphasis on the east where there is more precipitation. The settlement pattern is related almost exclusively to the railway network which was developed at the same time as modern migration into the area occurred. Other unifying forces are the mineral resources of coal, oil and gas which underlie the region. They are particularly abundant in the Alberta portion, especially in the Edmonton area, and their exploitation has led to the growth of some industrialization in the larger cities. The construction of oil and gas pipelines has aided in the distribution of these products westward and eastward.

Great Lakes-St. Lawrence Region.—This region supports three-quarters of the population of Canada and is the financial, administrative and educational heart of the country; each of its two metropolitan areas of Toronto and Montreal has a population in excess of one million. Although a lowland, the region is not everywhere level but, in combination with good soils and a relatively mild climate, is level enough to make the region one of Canada's most important agricultural areas. Mixed farming is predominant but dairying is well developed to meet the needs of the urban population and the area produces the major part of Canada's output of such special crops as tobacco, fruit, sugar beets, soybeans, honey, nursery stock and maple products. Physically, the principal subdivision of the region occurs where an outlier of the Canadian Shield crosses the St. Lawrence River, but cultural and historical factors have dictated a political boundary between Ontario and Quebec, which is fundamentally based on the language spoken by the majority—English or French. More than three-quarters of Canada's manufacturing is done here and the economy of the region rests on these activities. Their growth is attributable to easy access to a variety of raw materials, an abundant supply of electric power, a skilled labour force and an intricate network of highways and railways closely linked with the Great Lakes-St. Lawrence inland water system. The latter permits economic domestic and international movement of bulk commodities such as iron ore and coal for the basic iron and steel industries of Hamilton, Welland and Sault Ste. Marie. In the Ontario portion of the region the emphasis is on the production of automobiles, industrial and farm machinery, electrical goods, household equipment, rubber goods, synthetic textiles and industrial and consumer chemicals. The agricultural resources of the area are used in flour and feed mills, slaughtering and meat-packing plants, leather tanneries and fruit and vegetable canneries. In Quebec, many of the industries are located along or near the southern edge of the Canadian Shield, close to the great water power developments. The manufacture of pulp and paper, using the

forests of the Shield, is the most valuable industry followed by the refining of non-ferrous metals and the production of a variety of petroleum products. Almost 90 p.c. of the tobacco products produced in Canada are manufactured in Quebec and the textile and clothing industries are also very important. The portion of the region south of the St. Lawrence River is part of the Appalachian Mountain system, and of the minerals produced there asbestos is by far the most important, amounting to some 70 p.c. of the world's output.

Gulf Region.—The most common element unifying the lands about the Gulf of St. Lawrence is the sea, with which the region is in intimate contact. It is therefore a region of islands and peninsulas, and hundreds of small coves and harbours indent the coasts, particularly of Nova Scotia and the Island of Newfoundland, which are admirably suited for fishing ports. Off-shore lie some 200,000 sq. miles of shallow sea, comprising one of the most prolific fishing grounds of the world, particularly for cod. In addition to this so-called deepsea fishery, there are several thousand square miles of in-shore fishing grounds within 15 miles of land, and even closer lie the lobster and oyster beds, particularly associated with Prince Edward Island and New Brunswick. The region is part of the Appalachian Mountain system and heights of over 3,000 feet are found in the Gaspé area of Quebec; also, a few points in the western part of the Island of Newfoundland and northern New Brunswick exceed 2,000 feet. However, the general topography is hilly rather than mountainous and this feature, combined with a cool marine climate, produces an environment generally less favourable to agriculture than other parts of Canada. Where exceptions to the hilly country occur, as in Prince Edward Island, the Annapolis Valley of Nova Scotia, the Avalon Peninsula of Newfoundland and the St. John Valley of New Brunswick, agriculture is carried on and in some areas has become highly specialized. Lumbering is the most important inland activity and supports a number of pulp and paper mills and sawmills. The mineral resources, though relatively modest, are not insignificant to the economy of the region. The iron and steel industry of the Sydney area is based on local coal and iron ore from the Wabana deposits off the Island of Newfoundland. Other important minerals produced are lead, zinc, copper, gypsum and salt. Settlement is mainly along the coasts and river valleys where the various national origins of the people have tended to be perpetuated in the local cultures of the communities.

PART III.—LAND RESOURCES AND PUBLIC LANDS

Section 1.—Land Resources

Information currently available regarding Canada's vast land resources is shown in Table 1, where the land area is classified as occupied agricultural, forested and 'other' land, the latter including urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock. Soil surveys now under way by the Department of Agriculture will make it possible in the future to estimate the amount of arable land Canada possesses and, as provincial inventories are completed, more information will be available regarding land now non-forested but not productive in an agricultural sense. The Department of Forestry estimates that about 48 p.c. of the land area of Canada is forested and, according to the Census of 1956, less than 8 p.c. is classed as occupied farm land. A great part of the 1,606,146 sq. miles of 'other' land is located in the Yukon and Northwest Territories which together have a land area of 1,458,784 sq. miles. The occupied farm land in these Territories is practically nil and the forested area is estimated at 275,800 sq. miles.

1.—Land Area classified as Occupied Agricultural or Forested, by Province

NOTE.—Figures for occupied agricultural land were obtained from the 1956 Census; areas of forested land were compiled by the Department of Forestry from estimates supplied by the Forestry Service in each province.

Description	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
Occupied Agricultural Land—												
Improved—Crops and summerfallow..	25	659	655	985	8,776	13,385	16,427	60,428	34,284	1,215	1	136,819
Pasture.....	9	314	252	395	4,129	5,423	929	1,763	2,000	500	1	15,715
Other.....	4	36	77	106	579	856	540	1,100	820	108	1	4,226
Unimproved—Forest (woodland)?.....	42	522	2,447	2,662	7,622	5,217	2,448	3,717	4,517	1,337	1	30,532
Other.....	32	134	906	510	3,754	6,201	7,674	31,108	30,208	3,032	5	84,464
Totals, Occupied Agricultural Land	112	1,665	4,337	4,658	24,860	31,062	28,048	98,116	71,829	7,092	7	271,756
Forested Land—												
Softwood—												
Merchantable.....	24,429	78	7,270	6,312	119,774	44,769	14,689	10,118	13,591	80,330	35,200	356,560
Young growth.....	5,843	365	789	2,895	48,011	36,058	20,434	2,734	15,088	87,786	10,000	230,933
Mixedwood—												
Merchantable.....	403	133	5,458	7,319	23,933	25,001	5,487	9,011	12,436	—	19,800	108,981
Young growth.....	269	145	458	2,047	18,159	34,324	6,590	5,045	11,135	—	3,500	81,681
Hardwood—												
Merchantable.....	9	13	659	3,097	6,006	3,497	3,497	9,205	4,983	3,945	4,700	38,058
Young growth.....	244	11	45	955	5,953	17,494	4,950	1,773	13,355	7,953	2,500	55,233
Unclassified ¹	2,680	37	427	2,336	1,345	1,189	3,011	3,122	46,156	28,397	—	88,700
Totals, Productive Forested Land...	33,877	812	15,106	23,808	220,272	165,741	58,667	41,008	116,744	208,411	75,700	960,146
Non-productive Forested Land ⁴	53,915	122	1,283	521	157,860	96,006	64,638	76,730	42,320	59,227	200,100	752,722
Totals, Forested Land	87,792	934	16,389	24,329	378,132	261,747	123,305	117,738	159,064	267,638	275,800	1,712,868
Net Productive Land⁵	33,947	1,955	16,996	25,804	237,510	191,586	84,237	135,407	184,056	214,166	75,706	1,201,370
Other Land⁶	55,183	107	2,123	1,510	128,490	56,500	62,900	8,045	22,424	85,886	1,182,978	1,606,146
Totals, Land Area⁷	143,045	2,184	20,402	27,835	523,860	344,092	211,775	220,182	248,800	359,279	1,458,781	3,560,238

¹ Less than one square mile.

⁴ Areas incapable of producing crops of merchantable timber because of adverse climatic, soil or moisture conditions.

⁵ Includes only occupied agricultural land (less forest woodland) plus productive forested land.

⁶ Comprises all urban land, road allowances, grass and brush land and all waste land such as open muskeg, swamp and rock.

⁷ Net Productive Land plus Non-productive Forested Land plus Other Land.

⁸ Includes areas of recent burn, cut-over or windfall not yet re-stocked.

Section 2.—Federal and Provincial Public Lands

In Table 2 classifying the area of Canada by tenure, items 2, 3, 4 and 5 are obtained from Federal Government sources and items 1, 6, 7 and 8 from provincial government sources.

2.—Total Area classified by Tenure (circa) 1961

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	6,768	2,058	16,162	15,455	43,500	46,372
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	156	90	168	625	347 ¹	1,694
3. National Parks.....	153	7	367	80	²	12
4. Indian reserves.....	—	4	40	59	280	2,431
5. Federal forest experiment stations.....	—	—	—	35	7	41
6. Provincial lands other than Provincial Parks and provincial forest reserves.....	148,907	23	4,687	10,695	508,176	337,046
7. Provincial Parks.....	84	²	1	1	36,200	5,460
8. Provincial forest reserves.....	117	2	—	1,404	6,350	19,526
Totals.....	156,185	2,184	21,425	28,354	594,860	412,582
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	45,972	104,761	94,626	19,487	78	395,239
2. Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,224	4,865	2,961	489	1,508,267 ³	1,520,886
3. National Parks.....	1,148	1,496	20,717 ⁴	1,671	3,625 ⁵	29,276
4. Indian reserves.....	819	1,886	2,440	1,278	9	9,246
5. Federal forest experiment stations.....	⁶	—	23	—	—	106
6. Provincial lands other than Provincial Parks and provincial forest reserves.....	196,470	16,931	125,760	289,865	—	1,638,560
7. Provincial Parks.....	1,638	2,255	139	13,162	—	58,940
8. Provincial forest reserves.....	3,729	119,506	8,619	40,303	—	199,556
Totals.....	251,000	251,700	255,285	366,255	1,511,979	3,851,809

¹ Includes Gatineau Park (97 sq. miles) and Quebec Battlefields Park (0.36 sq. mile) which are under federal jurisdiction but are not technically National Parks.

² Less than one square mile.

³ Includes 952,849

sq. miles set aside by Order in Council as native game preserves in which only Indians and Eskimos may hunt, but which are not regarded as National Parks.

⁴ Includes that part of Wood Buffalo Park in Alberta (13,675 sq. miles); this park, although established under the National Parks Act, is administered by the Northern Administration Branch, Department of Northern Affairs and National Resources.

⁵ That part of Wood Buffalo Park in N.W.T.

⁶ A forest experiment area of 25 sq. miles is included in National Parks figure.

Federal Public Lands.—Public lands under the administration of the Federal Government comprise lands in the Northwest Territories including the Arctic Archipelago and the islands in Hudson Strait, Hudson Bay and James Bay, lands in Yukon Territory, Ordnance and Admiralty Lands, National Parks and National Historic Sites, Forest Experiment Stations, Experimental Farms, Indian reserves and, in general, all public lands held by the several departments of the Federal Government for various purposes connected with federal administration (see Table 2). These lands are administered under the Territorial Lands Act (RSC 1952, c. 263) and the Public Lands Grants Act (RSC 1952, c. 224) which became effective June 1, 1950 and replaced previous legislation.

The largest areas under federal jurisdiction are in the Northwest Territories and Yukon Territory where only 78 sq. miles of a total area of 1,511,979 sq. miles are privately owned. This part of the national domain, with the exception of the islands in Hudson Bay and James Bay, is all north of the 60th parallel of latitude and occupies about 40 p.c. of the surface of Canada. It is under the administration of the Northern Administration Branch of the Department of Northern Affairs and National Resources.

Provincial Public Lands.—Public lands of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia (except the Railway Belt and Peace River Block) have been administered since Confederation by the provincial governments. In 1930 the Federal Government transferred the unalienated portions of the natural resources of Manitoba, Saskatchewan and Alberta and of sections of British Columbia to the respective governments, and all unalienated lands in the Province of Newfoundland, except those administered by the Federal Government, became provincial public lands under the Terms of Union on Mar. 31, 1949. All land in the Province of Prince Edward Island has been alienated except 126 sq. miles under federal or provincial administration.

Information regarding provincial public lands may be obtained from the respective provinces. (See the Directory of Sources of Official Information, Chapter XXVI, under "Lands".)

Subsection 1.—National Parks

The National Parks of Canada are areas selected for their natural or historic importance which are to be preserved for all time for the "benefit, education and enjoyment of the people of Canada". Through the wisdom of farsighted legislators more than 75 years ago, Canada has today a system of National Parks that compares favourably with that of any other country. Initially, an area of 10 sq. miles around mineral hot springs on Sulphur Mountain in Alberta was reserved "from sale, or settlement or squatting" for the benefit of the nation. Two years later—in 1887—the Rocky Mountain Park Act established the first National Park (now Banff) and, since then, other areas across the country have been so preserved. These protected areas, which now cover more than 29,000 sq. miles, are administered by the National Parks Branch of the Department of Northern Affairs and National Resources. They are classified as: *National Parks*—natural wilderness areas set apart for preservation because of the national importance of their flora, fauna and geological features; and *National Historic Parks and Sites*—sites selected as of national significance in the colourful history of the nation.

Fine specimens of plains and wood bison, prong-horned antelope and whooping crane survive today because of the protection afforded them within National Parks. Although hunting is prohibited, angling is permitted in all the parks under regulation as to seasons, bag limits and licences. Nature trails have been set out in most parks and the interpretation of the natural features of each park is made available to the visitor through Park

Naturalists. Park Wardens, supervised by Park Superintendents, are responsible for the various districts of each park and maintain constant vigilance for the safety of their areas and of visitors. Various types of accommodation are available ranging from primitive campgrounds to luxury hotels. The camping facilities are provided by the Park Service but private accommodations are operated by lessees of such establishments.

National Historic Parks, declared of importance in the history of Canada upon advice of the Historic Sites and Monuments Board of Canada, include military, fur-trade and Mounted Police forts, houses of historic interest, and examples of outstanding early-Canadian architecture. Some of the buildings and their surroundings have been partially restored and others have been preserved as they were found; many contain museums. In addition, more than 570 sites have been marked by official tablets commemorating historic events in the life of the nation.

3.—Location, Year Established, Area and Characteristics of National Parks and National Historic Parks

Park	Location	Year Estab- lished	Area	Characteristics
			sq. miles	
National Parks				
Terra Nova.....	On Bonavista Bay, Newfoundland, 205 miles north of St. John's.	1957	153.0	Maritime area now under development; rocky headlands, wooded areas with abundant wildlife, off-shore and fresh-water fishing. Serviced campground and cabin accommodation.
Prince Edward Island..	North shore of Prince Edward Island.	1937	7.0	Strip 25 miles long on shores of the Gulf of St. Lawrence. Recreational area, fine bathing beaches. Accessible by highway. Hotel and cabin accommodation. Serviced campgrounds.
Cape Breton Highlands.	Northern part of Cape Breton Island, N.S.	1936	367.0	Rugged Atlantic coastline with mountainous background. Fine seascapes. Recreational opportunities. Hotel and cabin accommodation. Serviced campgrounds.
Fundy...Y.....	On Bay of Fundy between Moncton and Saint John in New Brunswick.	1948	79.5	Delightful recreational area. Forested region, wildlife sanctuary, rugged terrain. Cabin accommodation. Serviced campgrounds.
Georgian Bay Islands..	In Georgian Bay, north of Midland, Ont.	1929	5.4	Recreational and camping area. Unique pillars on Flowerpot Island. Accessible by boat from nearby mainland points. Serviced and unserviced campgrounds on Beausoleil Island.
Point Pelee.....	On Lake Erie in south-western Ontario.	1918	6.0	Wildlife sanctuary. Remarkable beaches, southern flora. Resting place for migratory birds. Accessible by highway. Serviced campground.
St. Lawrence Islands...	In St. Lawrence River between Brockville and Kingston, Ont.	1914	260.0 (acres)	Mainland area and 14 islands among the Thousand Islands. Recreational and camping area. Accessible by highway; by boat from nearby mainland points.
Riding Mountain.....	Southwestern Manitoba, west of Lake Winnipeg.	1929	1,148.0	Wildlife sanctuary on summit of escarpment. Fine lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Prince Albert.....	Central Saskatchewan, north of Prince Albert.	1927	1,496.0	Forested region dotted with lakes and interlaced with streams. Summer recreational area. Accessible by highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.

3.—Location, Year Established, Area and Characteristics of National Parks and National Historic Parks—continued

Park	Location	Year Established	Area	Characteristics
			sq. miles	
National Parks—concluded				
Banff.....✓.....	Western Alberta, on east slope of Rockies.	1885	2,564.0	Magnificent scenic area; noted resorts, Banff and Lake Louise. Mineral hot springs; summer and winter sports. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Elk Island.....✓.....	Central Alberta, near Edmonton.	1913	75.0	Fenced preserve containing large herd of buffalo; also deer, elk and moose. Popular recreational area. Accessible by highway. Cabin accommodation and serviced campground.
Jasper.....✓.....	Western Alberta, on east slope of Rockies.	1907	4,200.0	Mountainous area and noted wildlife sanctuary. Majestic peaks, icefields, beautiful lakes and famous resort, Jasper. Mineral hot springs, summer and winter sports. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Waterton Lakes.....	Southern Alberta, adjoining Glacier Park in Montana, U.S.A.	1895	203.0	Canadian section, Waterton-Glacier International Peace Park. Mountainous area with spectacular peaks and beautiful lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Glacier.....	Southeastern British Columbia, on summit of the Selkirk Range.	1886	521.0	Superb alpine region, towering peaks, glaciers and forests. Climbing, skiing, camping.
Kootenay.....✓.....	Southeastern British Columbia, on west slope of Rockies.	1920	543.0	Includes Vermilion-Sinclair section of Banff-Windermere Highway. Broad valleys, deep canyons, mineral hot springs. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Mount Revelstoke.....	Southeastern British Columbia, on west slope of Selkirks.	1914	100.0	Rolling mountain-top plateau. Colourful alpine meadows. Accessible by secondary highway. Summer accommodation in Park. Championship ski runs and ski jump. Unserved campgrounds.
Yoho.....✓.....	Eastern British Columbia, on west slope of Rockies.	1886	507.0	Lofty peaks, magnificent waterfalls, colourful lakes. Yoho and Kicking Horse Valleys. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and unserviced campgrounds.
Wood Buffalo ¹	Partly in Alberta and partly in Northwest Territories, between Athabasca and Slave Rivers.	1922	17,300.0	Immense region of forests and open plains. Home of largest remaining herds of plains bison and wood bison on the Continent. Other wildlife abundant.
National Historic Parks				
Signal Hill.....	St. John's, Nfld.....	1958	243.4	Location of military installations and site of operations and battles in 1762. Cabot Tower.

¹ Administered by the Northern Administration Branch, Department of Northern Affairs and National Resources.

3.—Location, Year Established, Area and Characteristics of National Parks and National Historic Parks—concluded

Park	Location	Year Estab- lished	Area	Characteristics
			acres	
National Historic Parks—concluded				
Fort Amherst.....	Prince Edward Island, near Rocky Point.	1959	222.0	Remaining earthworks of British fort built after 1758.
Fort Anne.....	Nova Scotia, at Annapolis Royal.	1917	31.0	Site of French fort first built about 1635, finally captured and occupied by British in 1710. Museum and well-preserved earthworks.
Fortress of Louisbourg.	Cape Breton Island, N.S., 25 miles from Sydney.	1941	339.5	Ruins of walled city erected by the French, 1713-58. Interesting excavations. Museum.
Halifax Citadel...✓	Halifax, N.S.....	1956	36.9	Defence post constructed 1828-35. Museums.
Port Royal.....	Port Royal, N.S., 8 miles from Annapolis Royal.	1941	20.5	Restoration of "Habitation"—first fort built in 1605 by Champlain and DeMonts.
Alexander Graham Bell	Baddeck, N.S.....	1955	14.0	Museum contains mechanical and documentary records of research by the inventor.
Grand Pré.....✓	Grand Pré, N.S.....	1957	14.0	Commemorates the story of the Acadians and the New England Planters. Museum.
Fort Beauséjour.....✓	New Brunswick, near Sackville.	1926	81.3	Site of French fort erected in middle of 18th century. Museum.
Fort Chambly.....	Chambly, Que.....	1941	2.5	Original French fort built on Richelieu River in 1665 was burned. Present fort built by English in 1709-11. Museum.
Fort Lennox.....	Île aux Noix, Que., near St. Paul.	1941	210.0	Original fort, Île aux Noix, built by French in 1759. Fort Lennox built by English in 1820's.
Cartier-Brébeuf.....	Quebec, Que.....	1957	14.0	Commemorates the 1535 wintering of Jacques Cartier and party.
Sir Wilfrid Laurier's Birthplace. ✓	St. Lin, Que.....	1941	1.0	Original house containing furniture of the period.
Fort Malden.....	Amherstburg, Ont.....	1941	8.0	Site of defence post built 1797-99. Museums.
Fort Wellington...✓	Prescott, Ont.....	1941	8.5	Defence post built 1812-13. Museum.
Woodside.....	Kitchener, Ont.....	1954	12.0	Boyhood home of the Rt. Hon. William Lyon Mackenzie King, former Prime Minister of Canada.
Fort Prince of Wales...	Northern Manitoba, near Churchill.	1941	50.0	Ruins of fort built 1733-71 to secure control of Hudson Bay for England.
Lower Fort Garry.....	Manitoba, 20 miles north of Winnipeg.	1951	13.0	Stone-walled fort built by the Hudson's Bay Company between 1831 and 1839.
Batoche Rectory.....	Saskatchewan, near Duck Lake.	1954	1.3	Scene of Northwest Rebellion, 1885. Ancient rectory and adjoining Middleton's trenches. Museum.
Fort Battleford.....	Saskatchewan, 4 miles south of North Battleford.	1951	36.7	North West Mounted Police post built in 1876. Museum.
Fort Langley.....	Fort Langley, B.C.....	1958	9.0	Partially restored fort. First permanent British settlement in British Columbia. Museum.

Evidence of the increasing attraction of Canada's National Parks and National Historic Parks is shown by the growing numbers of visitors given in Table 4.

4.—Visitors to National Parks and National Historic Parks, 1959-61

Park	Years ended Mar. 31—			Apr. 1- Dec. 31, 1961
	1959	1960	1961	
	No.	No.	No.	
National Parks				
Terra Nova.....	..	..	20,000 ¹	29,710
Prince Edward Island.....	206,245	224,781	412,463	775,583
Cape Breton Highlands.....	162,938	193,684	223,292	371,686
Fundy.....	179,277	199,777	227,262	280,006
Georgian Bay Islands.....	14,521	17,630	19,657	14,230
Point Pelee.....	604,149	745,528	545,545	485,637
St. Lawrence Islands.....	53,573	53,745	61,522	86,150
Riding Mountain.....	667,561	659,995	629,140	612,874
Prince Albert.....	135,546	136,818	137,801	140,650
Banff.....	880,150	980,069	1,078,008	951,854
Elk Island.....	222,695	196,862	198,277	174,468
Jasper.....	332,251	324,857	356,538	332,511
Waterton Lakes.....	362,829	340,220	349,496	420,865
Glacier.....	386	347	287	2,180
Kootenay.....	385,736	440,031	467,555	448,401
Mount Revelstoke.....	27,669	16,089	38,634	61,227
Yoho.....	51,817	70,001	65,071	92,836
Wood Buffalo.....	..	..	..	..
Totals, National Parks	4,287,343	4,600,434	4,930,648	5,280,868
National Historic Parks				
Signal Hill.....	3,140 ²	7,130 ²	112,054	130,000
Fort Amherst.....	..	..	893	1,432
Fort Anne.....	30,443	31,159	57,140	69,206
Fortress of Louisbourg.....	25,796	21,625	23,915	29,740
Halifax Citadel.....	137,259	190,383	204,677	221,340
Port Royal Habitation.....	28,085	28,071	19,842	20,867
Alexander Graham Bell Museum.....	45,804	47,122	59,784	73,171
Grand Pré.....	38,945	38,981	34,361	47,305
Fort Beauséjour.....	16,051	21,369	31,719	42,887
Fort Moncton.....	..	..	..	..
Fort Chambly.....	56,804	67,438	68,738	61,121
Fort Lennox.....	10,816	9,865	30,725	32,890
Cartier-Brébeuf.....	10,200 ¹	10,365	..	..
Sir Wilfrid Laurier's Birthplace.....	6,363	5,993	7,634	7,114
Fort Malden.....	28,855	32,132	41,558	34,509
Fort St. Joseph.....	..	..	..	..
Fort Wellington.....	18,859	28,732	35,449	38,634
Woodside.....	2,046	4,972	5,170	7,651
Fort Prince of Wales.....	425	647	1,251	414
Lower Fort Garry.....	15,000 ¹	33,229	42,787	50,234
Batoche Rectory.....	600 ¹	936	5,896	15,641
Fort Battleford.....	18,099	15,499	28,992	26,910
Fort Langley.....	55,010	45,870	91,627	96,507
Totals, National Historic Parks	548,600	641,518	904,212	1,007,573
Grand Totals	4,835,943	5,241,952	5,834,860	6,288,441

¹ Estimated.

² Registrations only.

Subsection 2.—Provincial Parks

Most of the provincial governments of Canada have established parks within their boundaries. Some of these, particularly in Quebec and Ontario, are wilderness areas set aside in order that some portions of the country might be retained in their natural state without change brought about by the hand of man. Most of them, however, are smaller areas of exceptional scenic or other interest which are easily accessible and are equipped

or slated for future development as recreational parks with camping and picnic facilities. The more important parks in each province are mentioned briefly in the following paragraphs.

Newfoundland.—There are 84 sq. miles of provincial parkland in Newfoundland—Sir Richard Squires Memorial Park, an area of 6 sq. miles on the Upper Humber River, Butterpot Park, an area of 7 sq. miles near St. John's, and Barachois Park, an area of 11 sq. miles near Stephenville, are under development. Two larger areas—42 sq. miles on the west coast known as Serpentine Park and 16 sq. miles in central Newfoundland—are undeveloped. In addition, 15 rest and camping parks have been completed along the Trans-Canada Highway, each park containing about 100 acres.

Prince Edward Island.—Eleven areas totalling 250 acres have been developed as provincial parks: Strathgartney Park, a 40-acre tract of land at Churchill on the Trans-Canada Highway between Charlottetown and Borden, is an excellent picnic site and camping ground with its hardwood groves, fresh spring water and beautiful view over West River and the surrounding country; Lord Selkirk Park, an area of 30 acres at Eldon, is of historic interest in that it contains an old French cemetery and marks the spot on the shoreline where Lord Selkirk landed; Brudenell River Park, comprising 80 acres at Roseneath, has a considerable area of woodland and runs to the shore of the Brudenell River; Jacques Cartier Park, an area of 13 acres under development at Kildare Beach four miles from Alberton, is of historic significance as the place where Jacques Cartier first landed on Prince Edward Island; Green Park, 27 acres of land under development on the Trout River, is an attractive combination of land, trees and water and is also of historic interest as one of the oldest shipbuilding centres in the province. Small parks have been developed at Bloomfield, Linkletter Shore and Pinette, and others are under development at Marie, St. Peters and Red Point Beach. These parks are maintained by the Department of Industry and Natural Resources and fill a long-felt need for public picnic grounds and campsites.

Nova Scotia.—The Department of Lands and Forests of Nova Scotia operates 12 small parks scattered throughout the province, some of which are equipped for camping and picnicking and others for picnicking only. During 1961 considerable improvement and expansion was carried out on existing parks and one new park was opened—Laurie Park, an area of 60 acres on a lakeside 18 miles north of Halifax. The Department also operates the Provincial Wildlife Park at Shubenacadie, a 30-acre tract of land maintained in its natural state, as far as is consistent with the need for providing food and protection for the animals and birds that are its main attraction. Facilities of the park are such that visitors, which number about 200,000 each year, may see the wildlife at close range. Expansion is planned as more varieties of animals and birds become available and can be absorbed.

A master plan has been prepared of theoretically desirable park locations in the province, taking into consideration the need for roadside facilities, regional picnic parks and camping grounds. Geographic location, population density, volume of traffic and aesthetic features are being evaluated for each site. Roadside table sites, formerly administered by the Department of Highways, are being incorporated into this provincial scheme and will be operated according to provincial park standards. Many of the existing sites will be retained and improved, some will be retained on a temporary basis only and unsuitable sites will be discontinued. The provincial parks program will require about five years of development work for completion.

Quebec.—The Province of Quebec has established five provincial parks and seven Fish and Game Reserves. Four of the park areas are quite extensive. La Vérendrye Park, 140 miles northwest of Montreal, has an area of 4,746 sq. miles; Laurentide Park, 30 miles north of Quebec City, is 3,612 sq. miles in extent; Mont Tremblant, 80 miles north of Montreal, 1,223 sq. miles; and Gaspesian Park, Gaspé Peninsula, 514 sq. miles. Mount Orford Park, situated 15 miles west of Sherbrooke, has an area of 15 sq. miles.

The Fish and Game Reserves together occupy more than 10,000 sq. miles. The Chibougamau Reserve and the Mistassini Reserve, both northwest of Lake St. John, cover 3,400 sq. miles and 5,200 sq. miles, respectively. Smaller reserves are the Kipawa Reserve in the Témiscamingue district, the Shickshock Reserve adjoining Gaspesian Park, and the Petite Cascapedia and the Port Daniel, reserved for salmon and trout fishing, both of which lie along the Bay of Chaleur in Gaspé Peninsula.

These parks and reserves are wilderness areas of great scenic interest—for the most part mountainous country threaded with many rivers, lakes and streams and abounding in wildlife. In all of them, except Mount Orford, excellent fishing may be found and most of them have been organized to accommodate sportsmen and tourists in camps, cottages and lodges. Mont Tremblant Park, located close to a famous year-round recreational area, is, in summer, easily reached by highway from Montreal and is very popular for tent or trailer camping and for swimming and picnicking. The Department of Fisheries and Game administers the parks and reserves, and also six salmon streams which are open to anglers.

Ontario.—The provincial parks system in Ontario has been greatly expanded in recent years. There are 77 parks now available for public use and five new parks are in process of development. Thirteen other areas are reserved for future development. The total area in the Ontario Provincial Parks system is about 5,460 sq. miles.

The four largest provincial parks—Algonquin, Quetico, Lake Superior and Sibley—together have an area of about 5,200 sq. miles. Algonquin, 180 miles north of Toronto and 105 miles west of Ottawa, has several campgrounds which are accessible by car from Highway 60 and its numerous waterways may be traversed and enjoyed by canoe. There are several commercial children's camps in the Park but the present administration policy is to provide development facilities, such as campgrounds, on the Park fringes and to retain the interior in a natural condition. The interiors of Quetico and Lake Superior Parks are also retained as wilderness areas with only fringe development. Quetico Park is accessible by road at the Dawson Trail Campground on French Lake, and also by water via Basswood Lake in the south. Highway 17 north from Sault Ste. Marie provides access to Lake Superior Park, and Sibley Park may be reached by road from Highway 17 east from Port Arthur. There are small charges for entry of automobiles into provincial parks and for overnight camping.

Under the Wilderness Areas Act, which came into effect in 1959, 35 areas have now been established. These tracts of land, widely distributed across the province, vary in size, character and significance but all are regarded as important for their historical, scientific, aesthetic or cultural values. The largest is a 225-sq. mile area of treeless tundra in the northeastern tip of the province, jutting out at the base of Hudson Bay where it meets James Bay. All the other areas are small and none exceeds 640 acres. Perhaps the most widely known is the Sleeping Giant, a geological formation resembling a recumbent man, in Thunder Bay at the Lakehead.

The parklands of Ontario are administered by the Parks Branch of the Department of Lands and Forests, Parliament Buildings, Toronto, from which detailed information in booklet form is available.

Manitoba.—In Manitoba, four large areas of virgin forest have been set aside as provincial parks. In addition, numerous recreational areas, camp and picnic grounds, and roadside stopping places have been established. These park areas are administered by the Parks Division of the Forest Service.

Saskatchewan.—Saskatchewan has 14 provincial parks with a total area of about 2,300 sq. miles. Cypress Hills, Duck Mountain, Greenwater Lake, Moose Mountain and Valley Centre are operated as summer resorts with chalet, lodge, cabin and trailer

accommodation as well as camping and picnic facilities. The other parks have camping, picnicking, boating and swimming facilities. Recreational activities include fishing, boating, swimming, golf, tennis, dancing, baseball, hiking, nature study, horseback riding, etc., and the parks are all well fitted with playground and beach equipment for children. In Cypress Hills Park, elk, antelope, deer, sharp-tailed grouse and beaver are plentiful and brook and other trout abound in the streams and lakes. Heavy stands of tall, straight lodgepole pine provide forest cover in this area. In Duck Mountain, Moose Mountain and Greenwater Lake Parks, moose, elk, deer, bear and beaver are common, as well as several varieties of grouse, and many species of water and smaller land birds. Spruce, poplar and white birch provide excellent cover for wildlife. Pickerel, pike and perch are prevalent in most of the lakes. Lake trout are ardently sought by fishermen in the northern lakes. Three wilderness parks (LaRonge, Nipawin and Meadow Lake) offer wilderness-style canoe routes and 'fly-in' commercially operated fishing and hunting camps. Many roadside picnic grounds are located throughout the province and several excellent Trans-Canada Highway campsites have been developed.

Sites of historic interest are marked throughout the province and include the Touchwood Hills Hudson's Bay Post, where picnic facilities are available.

Alberta.—In Alberta, 41 provincial parks have been established, with a total area of about 139 sq. miles. Of these, 37 are under development. Cypress Hills Provincial Park, with an area of 77 sq. miles, is the largest and is situated in the southeast portion of the province. The other Parks under development are: Aspen Beach, Beauvais Lake, Big Hill Springs, Bow Valley, Bragg Creek, Crimson Lake, Cross Lake, Dillberry Lake, Entrance, Garner Lake, Gooseberry Lake, Hommy, Kinbrook Island, Lac Cardinal, Little Bow, Little Fish Lake, Long Lake, Ma-Me-O Beach, Miquelon Lake, Moonshine Lake, O'Brien, Park Lake, Pembina River, Red Lodge, Rochon Sands, Saskatoon Island, Steveville Dinosaur, Taber, Thunder Lake, The Vermilion, Wabanun Lake, Williamson, Willow Creek, Winagami Lake, Woolford, and Writing-on-Stone. These parks generally are provided with picnic, camping and playground facilities and are maintained by the Department of Lands and Forests primarily for the recreation and enjoyment of the residents of the province. A former provincial park—Sylvan Lake—is now operated by the Department of Highways as a campsite.

In addition to the recreational parks, 11 sites have been established to mark and preserve locations of historic interest in the province. They include: Fort DeL'Isle, Fort Vermilion, Ribstones, Twelve Foot Davis, Massacre Butte, Early Man, Standoff, Fort Victoria, Fort White Earth, Fort George and Buckingham House.

British Columbia.—There are 183 provincial parks in British Columbia with a total area of about 13,000 sq. miles. These parks are classified as A, B and C. Class A parks are those considered most highly for immediate recreational development and are strongly protected. Class B parks are areas slated for development—valuable wilderness areas or places set aside for a specific reason. Class C parks are intended primarily for the use of local residents and are usually under Board management. The parks are in all stages of development and dedicated to a variety of recreational uses. There are immense wilderness areas such as Tweedsmuir and Wells Gray Parks and outstanding scenic and mountain places which include Garibaldi, Mount Robson and E. C. Manning Parks. Thousands of city dwellers throng to the ski slopes of Mount Seymour or picnic at Cultus Lake Park. The formal gardens of Peace Arch are a monument to the goodwill between Canada and the United States. Vancouver Island has a chain of small forest parks that have achieved a tremendous popularity with tourists—the best known are Little Qualicum Falls, Miracle Beach and Goldstream. In addition there is a campsite system closely integrated with the provincial parks, many campsites actually being located in the parks. The famous

gold town of Barkerville has become the first Provincial Historical Park. A new venture is the establishment of a marine park system; there are now five marine parks, all with water access.

Subsection 3.—Canada's National Capital*

Ottawa, the city selected by Queen Victoria in 1857 to be the seat of government for the Province of Canada in British North America, was designated the National Capital upon Confederation on July 1, 1867. The community had grown out of the military and construction camp that served as headquarters for the building of the Rideau Canal, a project carried out between 1826 and 1832 to establish a safe navigable waterway between Lake Ontario and the Ottawa River. The building of the Canal was the crowning achievement in the life of a distinguished British military engineer, Lieutenant-Colonel John By, R.E., who gave his name to the new settlement inhabited mainly by stone masons and discharged soldiers. As time passed, Bytown prospered as a timber centre and was incorporated as a town in 1847. Then, on Dec. 18, 1854, by Act of the Legislature of the Canadas, the name of Bytown was changed to Ottawa and under that name the community was incorporated as a city on Jan. 1, 1855.

The city, situated in an area of great natural beauty and surrounded by waterways, has remained a self-governing municipality and, although throughout the years the Federal Government co-operated with the municipal authorities in the development of a system of driveways and parks, the city expanded without the benefit of a comprehensive plan. However, in 1950 a Master Plan was presented to the Government of Canada, designed to guide the development of the Capital's urban area over the following half-century and to protect the beauty of the surrounding National Capital Region. This Region originally covered 900 sq. miles but was increased in 1959 to 1,800 sq. miles—half in the Province of Ontario and half in the Province of Quebec. Although the successful implementation of the Plan is dependent upon the co-operation of the cities of Ottawa and Hull—which are treated as a physical, social and economic whole—and of about sixty other autonomous municipalities and the two provincial governments involved, the National Capital Plan is not officially recognized by the Governments of Ontario and Quebec, and the City of Ottawa has as yet no municipal plan to govern its growth and development.

The federal agency responsible for the planning of Canada's Capital is the National Capital Commission, created in 1959 to replace the Federal District Commission which, in turn, was the lineal descendant of the Ottawa Improvement Commission. The National Capital Commission, which reports to Parliament through the Minister of Public Works, is composed of twenty members appointed by the Governor in Council and representing each of Canada's ten provinces. It is headed by a chairman and a general manager and has a personnel of about 650, although this number fluctuates because of the seasonal character of a large part of the work involved. Six committees give advice and direction to the Commission: the *Executive Committee* consists of the chairman and vice-chairman of the Commission and three other members appointed by the Commission, one of whom is from the Province of Quebec; the *Land Committee*, composed of several experts in land evaluation, advises the Commission on matters of land purchases and property administration; the *Advisory Committee on Design*, comprising prominent Canadian architects, town planners and landscape architects, gives advice on the external appearance of government buildings, locations, site plans and landscape designs; the *Historical Advisory Committee* advises the Commission on matters of preservation, marking and interpretation of buildings and sites having historical significance within the National Capital Region; the *Information and Historical Advisory Committee* studies and considers the publicity and public relations activities of the Commission, and carries out an extensive program of historical research and preservation; and the *Gatineau Park Advisory Committee* looks after matters concerning Gatineau Park.

* Prepared in the Information and Historical Division, National Capital Commission, Ottawa.

The National Capital Plan, as conceived by the eminent French town planner Jacques Gréber, was dedicated to those who gave their lives for Canada during the Second World War and has since constituted the Commission's planning guide for the Capital of Canada. In accordance with the first proposal of the Master Plan, the principle of "open space" is being applied, a policy beneficial to both residents and visitors. Part of this policy involves the restoration to their natural beauty of the shores of the waterways in and around Ottawa, a program evident in the work of the Commission at Rideau Falls Park opposite the City Hall and in the development of Vincent Massey Park in the heart of the city; the latter is a 75-acre park and playground extension to 50-acre Hog's Back Park at the foot of Hog's Back Falls. On the Quebec side of the Ottawa River the Commission maintains two parks—the historically interesting Brébeuf Park and Jacques Cartier Park, both on the shores of the river. Driveways and parkways in and around the Capital are also part of the open-space treatment. There are at present 40 miles of wide landscaped roadways in Ottawa and Hull, and 30 miles of right-of-way have been acquired for future expansion. The Commission cares for the landscaping of twelve municipal parks in Ottawa-Hull, of which Stratheona Park in Sandy Hill district and Rockcliffe Park are the most extensive and attractive. The acquisition of land along both shores of the Ottawa and Rideau Rivers and the exceptionally wide rights-of-way for parkways have given to Ottawa about 7,000 acres of open space.

One of the five recommendations of the Master Plan is that new government buildings should be dispersed from the heart of the city. This program of decentralization has been under way for some time and excellent examples of planned sites for government structures now exist at Confederation Heights, at Tunney's Pasture and at the Printing Bureau site in Hull. Other areas, such as the large tract of already serviced land at Pinecrest, are awaiting development. The advantages of decentralization are many—planned government building areas away from centre-town offer at least partial solution to the everpressing problem of traffic congestion and, from the humanitarian point of view, workers occupy buildings erected on large landscaped grounds with plenty of parking space and are close to main traffic arteries and shopping centres, and often to good housing developments. The grounds of more than 140 government buildings in the National Capital Region are cared for by the Commission, which also gives assistance to municipal projects that enhance the attractiveness of the area, such as the provision of land and landscaping for the 12-mile Queensway being built under a four-way partnership between the Federal Government, the National Capital Commission, the Province of Ontario and the City of Ottawa.

A main proposal of the Master Plan calls for the establishment of a greenbelt around the National Capital, one of the main objectives of which is to restrain the tentacular growth of the city so that family dwelling projects will be built on lands that can be supplied, at reasonable cost, with water and sewer services. There is also the aesthetic consideration that this belt of green open space and planned building sites will provide the beautified Capital with suitable approaches. The present semicircular greenbelt on the Ontario side occupies 41,000 acres of land and surrounds, to a depth of about two and one-half miles, the urban zone at an average distance of nine miles from the Peace Tower. The Commission encourages agricultural activity within this area and at the same time reserves within its boundaries certain tracts of land to be occupied by government buildings, public institutions and some types of industrial development such as research and experimentation establishments requiring considerable space to operate. By the end of March 1962, the Commission will have spent approximately \$23,000,000 to purchase for the Crown about 27,000 of the planned 41,000 acres. The entire project should be completed by 1963.

A primary task of the Commission is to carry out the railway relocation program strongly advocated in the Master Plan. At the very beginning of his study of Ottawa and Hull, Jacques Gréber discovered that little could be done for the National Capital unless

unsightly railway lines, of which there were 52 miles, and adjoining roundhouses and sheds were removed from the urban areas. The Commission has begun the large-scale program of relocating trackage and yards with the co-operation of the railway companies. The abandoned rights-of-way are destined to become planned roadways which will relieve traffic bottlenecks within the heart of the city; the Queensway, now under construction, runs on a former railway bed. This program is ahead of schedule and is now expected to be complete by 1965. It involves the removal of 32 miles of track, the elimination of 72 railway crossings and the consequent acquisition of 449 acres of high-value land for redevelopment.

The Master Plan also includes the establishment and development of the beautiful and impressive Gatineau Park, a 75,000-acre forest and lake area in the shape of a triangle stretching from its apex in the city of Hull northwestward for 35 miles into the Laurentian Hills. The National Capital Commission owns more than 62,000 acres of the projected area, and the acquisition of private holdings is continuing. The parkways through this area now measure about 20 miles and extensions are under construction. Camping and picnic sites are being improved by the installation of drinking fountains, barbecues and outdoor ovens, and well-designed restrooms, and by the addition of fishing and swimming facilities. At Lac Philippe and Lac Lapéche, two of the four big lakes in Gatineau Park, the Commission has developed or is planning large-scale public recreation facilities with easy road access.

In addition to these major development projects, the National Capital Commission, through its Historical Advisory Committee, plans to conserve historic buildings and sites as mementoes of the past. Such sites are carefully studied and their preservation and suitable marking is an important part of the over-all program.

Planning aid to municipalities in the National Capital Region is given in the form of grants in special circumstances and advice on establishing areas of subdivision control, preparation of basic plans and maps, master plans for communities and zoning legislation. This advice is available upon request and the Commission, having no planning powers, must seek to persuade rather than impose its proposals. Its planning staff has served a score of local municipalities in this capacity with varied success, and advice to many of them is continuing.

Estimated expenditures for the Commission projects in the year ending Mar. 31, 1962 total \$21,345,525, which includes \$2,557,470 for administration, operation and maintenance, \$3,971,285 for construction, \$11,100,000 for property acquisition and \$1,925,000 in grants and aid to municipalities.

Section 3.—Wildlife Resources and Conservation*

Wildlife in Canada is still considered to be an important and renewable natural resource. In the early days, wildlife was, and in large areas still is, the sustenance of the aborigines and trade in fur determined the course of exploration and settlement. During the period of the opening up of the country, many species of animals and birds became seriously depleted or completely extinct. The passenger pigeon, the great auk and the Labrador duck were extirpated, the buffalo vanished from the prairies, and wapiti, pronghorn antelope and musk-oxen were reduced to small fractions of their former numbers. The destruction was not limited to the animals and birds but in the areas of settlement their habitat was endangered by the cutting and burning of the forests, the diversion and pollution of streams and the changing of the face of the land.

* A series of special articles relating to the wildlife resources of Canada has been carried in previous editions of the Year Book. See list of special articles in Chapter XXVI, Part II, under the heading of "Fauna and Flora".

Since then, it may be said that wildlife has been changed and influenced by man to the degree that he has changed and influenced the environment. The arctic and alpine tundra, one of Canada's major vegetational regions, has been changed hardly at all; the adjacent sub-arctic and sub-alpine non-commercial forest has been changed principally as a result of increased human travel causing more forest fires; the great commercial forest farther south has not lost its real character through being managed; cultivable lands, whether originally forest or grassland, have completely changed but often they and the managed forest are better for many forms of wildlife than the original wilderness. Some creatures thrive on change. There are more moose, deer, grouse and probably more coyotes than in Indian days. Fur species, such as beaver and muskrat, are easily managed and many small mammals and birds thrive better in fields and woodlots than in the virgin forest, provided that they are not poisoned by pesticides. At the present time, the harvestable surplus of game and fur species across Canada is seldom fully utilized and it is quite clear that wildlife will remain abundant in Canada wherever there is space.

Thus, Canada today is known throughout the world for the wealth and variety of its wildlife. It maintains most or all the existing stocks of woodland caribou, California bighorn sheep, wolves, grizzly bears, trumpeter swans and wolverines, to mention a few. And these animals exist not only because of the vastness of their habitat but also because of man's efforts to preserve them. There is evidence of concern about the preservation of wildlife among the early Canadians; there were game laws in force in the original provinces when all but a few thousand acres of land were still the patrimony of the Indians. In 1887 pioneer conservationists were instrumental in establishing Banff Park in Alberta and in setting up a bird sanctuary at Last Mountain Lake in Saskatchewan, the first on the Continent. The same fervour for preservation of Canada's wildlife heritage led to the complete protection of wood bison in 1893 and the purchase and establishment of a nucleus herd of plains bison at Wainwright in Alberta in 1907. Thus was formed the basis of wildlife conservation efforts which, for a long time, took the form of complete protection of certain species from destruction by man or predator. Better knowledge of nature's operations and the recognition of the fact that many other factors combine to cause fluctuation in wildlife numbers are now being reflected in a loosening of restrictions on hunting and a rescinding of preserves. The science of animal numbers is new and sometimes runs counter to popular prejudice. But it is well understood that any area will support only so many animals and species that are highly productive must have a quick turnover. Wildlife must never be separated from the consideration of its environment and if the environment is fully stocked the annual increment need only replace the losses. All extra is surplus, only part of which is taken by predators and part, if the animal is a game species, by man.

As a natural resource, wildlife within the provinces comes under the administration of the respective provincial governments; wildlife on federal lands and certain problems of national or international interest are the concern of the Federal Government.

The Canadian Wildlife Service.—The Canadian Wildlife Service deals with most wildlife problems coming within the jurisdiction of the Federal Government. It was organized in 1947 to meet the growing need for scientific research in wildlife management and is a division of the National Parks Branch of the Department of Northern Affairs and National Resources. The Service conducts scientific research into wildlife problems in the Northwest Territories, Yukon Territory and the National Parks, advises the administrative agencies concerned on wildlife management, and co-operates in the application of such advice. It administers the Migratory Birds Convention Act, provides co-ordination and advice in connection with the administration of the Game Export Act in the provinces, deals with national and international problems relating to wildlife resources, and co-operates with other agencies having similar interests and problems in Canada and elsewhere.

The Migratory Birds Convention Act was passed in 1917 to give effect to the Migratory Birds Treaty signed at Washington in 1916. It provides a measure of protection for numerous species of birds that migrate between the two countries. The Canadian Wildlife Service, in its capacity as administrator of the Act, is responsible for the annual revision of the Migratory Bird Regulations, which govern such matters as open seasons and other waterfowl hunting details, taking and possessing migratory birds for scientific or propagating purposes, eiderdown collecting, etc. The Act and Regulations thereunder are enforced by the Royal Canadian Mounted Police and in both administration and enforcement co-operation is received from provincial authorities. There are 108 migratory bird sanctuaries in Canada, having a total area of 39,136 sq. miles. A sanctuary may be established on the initiative of the Department of Northern Affairs and National Resources or of a provincial or municipal government, or on petition by a private person or organization. Bird banding provides valuable information on the migration of birds and their natural history and is especially useful in waterfowl management. Serially numbered bands supplied by the United States Bureau of Sport Fisheries and Wildlife are used in Canada as well as in the United States.

Many research projects under way were continued during 1961. These included the study, in co-operation with the Government of Manitoba and the Council of the Northwest Territories, of barren-ground caribou and of animals that prey upon caribou—wolves, grizzlies and wolverines. With better understanding of caribou physiology and of the effects of destruction of winter range by fire, factors associated therewith have assumed increasing importance, although human utilization still heads the list of recognized mortality causes. Studies continued of such fur mammals as mink, muskrat and beaver in the Mackenzie District, and of polar bear and white fox in Keewatin and Franklin Districts. A systematic aerial survey of the Queen Elizabeth Islands in the Far North was undertaken to assess the resources of large mammals available there. Big game mammals in the National Parks were also the object of continued study, special attention being given to mountain sheep and wapiti in the mountain parks of Alberta where large populations of those species facilitate investigations, and to the competition for food between wapiti and the livestock still allowed to graze in Riding Mountain Park in Manitoba. In Wood Buffalo Park, investigations into the problems of disease and low reproductive rates among the animals were continued as a long-term project in the hope that some control of each might be achieved.

Damage to cereal crops by wild ducks and sandhill cranes continued to receive intensive study and much time was devoted to other species greatly reduced in number or in danger of extinction such as Ross's geese, trumpeter swans and whooping cranes. Nationwide investigations of migratory waterfowl included kill surveys in the Provinces of New Brunswick, Quebec and Ontario and a crop-damage survey in Saskatchewan. In addition, a mourning dove census was begun and the Arctic bird-banding program was continued.

At the end of 1961 the research staff included 41 wildlife biologists stationed at various centres throughout Canada. Ornithologists were located at Vancouver, B.C., Edmonton, Alta., Saskatoon, Sask., Winnipeg, Man., Ottawa and Aurora, Ont., Quebec, Que., Sackville, N.B., and St. John's, Nfld. Mammalogists were stationed in the Northwest Territories at Yellowknife, Fort Smith and Aklavik, and at Edmonton and Ottawa. Two limnologists were located at Edmonton and a range specialist and two pathologists at Edmonton and Ottawa, respectively. A number of university graduates and undergraduates are engaged annually to assist in summer field work. Ottawa headquarters has an administrative staff of about 30 in addition to supervisory research officers and about 25 part-time migratory bird wardens and sanctuary caretakers are employed.

PART IV.—CLIMATE AND TIME ZONES

Section 1.—Climate*

Just as there are great differences in the weather throughout Canada at any given instant, there are also many climates. These climates are not unique but are similar to those in Europe and Asia extending from the Arctic down to the mid-northern hemispheric latitudes. Because Canada is situated in the northern half of the hemisphere, most of the country loses more heat annually than it receives from the sun. The general atmospheric circulation compensates for this and at the same time produces a general movement of air from west to east. Migrant low pressure areas move across the country in this "westerly zone", producing storms and bad weather. In intervals between storms there prevails the fair weather associated with high pressure areas.

Although the movement of migrant high and low pressure systems within the zone of the westerlies is the most significant climatic control over Canada, the physical geography of North America contributes greatly to the climate. On the West Coast, the western Cordillera limits mild air from the Pacific to a narrow band along the coast, while the prairies to the east of the mountains are dry and have extreme temperatures because they are shielded from the Pacific Ocean and are in the interior of a large land mass. In addition, the prairies are part of a wide north-south corridor open to rapid air flow from either north or south which often brings sudden and drastic weather changes to this interior area. On the other hand, the large water surfaces of Eastern Canada produce a considerable modification to the climate. In southwestern Ontario winters are milder with more snow, and in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. On the East Coast, the Atlantic Ocean has considerable effect on the immediate coastal area where temperatures are modified and conditions made more humid when the winds blow inland from the ocean. The following paragraphs describe the climate of Canada by region.

The *Arctic* climatic region takes in the Arctic islands and that part of the Arctic Coast north of the tree line. This line corresponds in general to the position of the 50°F. isotherm in the warmest month of summer. In the Arctic there is no summer as that season is known in Southern Canada, since July temperatures average lower than 50°F. Winters are long and severe with January temperatures averaging in the neighbourhood of -20°F. Along the coastal areas of the Arctic islands, temperature extremes over the year may vary from about 65°F. in summer to -65°F. in winter. Snowfall is relatively light but snow on the ground drifts and blows to an extent unknown in Southern Canada.

The *Northern* climatic area extends in a broad band from the Yukon Territory in the west to Labrador in the east and from the tree line southward to the more settled portions of Southern Canada. Thus, this region includes both the lightly treed barren lands in the north and the heavily timbered Boreal Forest Region in the south. Average temperatures in January are in the neighbourhood of -10°F. and in July range from 50°F. to 60°F. Rainfall and snowfall (especially snowfall) are abundant in the eastern portions but deficient in the northwestern section.

The *Pacific* climatic region embraces the islands and a narrow coastal belt of British Columbia, nowhere extending more than 100 miles, and frequently only a few miles, inland. This is the only portion of Canada where January average temperatures are above 32°F. Temperatures rarely drop below zero in winter or rise above 90°F. in summer and the average temperature in July is between 55°F. and 60°F. This is the area of heaviest

* Prepared by the Meteorological Branch of the Department of Transport, Toronto. A comprehensive study on The Climate of Canada, also prepared by the Meteorological Branch, was carried in the 1959 Year Book, pp. 23-51. Supplementing that textual material, detailed tabulations of climatic factors for 45 individual meteorological stations across the country were carried in the 1960 Year Book, pp. 33-77. A reprint is available from the above source giving the complete textual and tabular data.

rainfall in Canada, annual averages of more than 80 inches being common along the coast. There are, however, rain shadow areas in the lee of the mountains where the annual precipitation is less than 30 inches.

The most complex climatic region of Canada is the *Cordillera* which extends in a northwest-south belt through British Columbia and the Yukon Territory. In general, precipitation decreases eastward from the coast and, in contrast, temperature ranges decrease westward from the interior of the Continent. In this region, diurnal temperature variations are greater than anywhere else in Canada and, as a rule, altitude is more a climatic determinant than latitude.

The *Prairie* climatic region of interior Canada takes in most of the settled agricultural land of Manitoba, Saskatchewan and Alberta. Precipitation averages from 12 to 20 inches, with an early-summer maximum. July temperatures average in the neighbourhood of 65°F., although there have been extremes recorded as high as 115°F.; January temperatures average about 5°F., with observed extremes of -50°F. and -60°F. The *Prairie* region is well known for two wintertime weather phenomena—the blizzard and the chinook. Bitterly cold temperatures with high winds and driving snow combine to produce the blizzard, while the chinook is a warm air invasion, usually in Alberta, bringing temperature increases of 40°F. to 50°F. within a few hours.

The sixth general climatic region, called the *Southeastern* region, takes in southern Ontario, southern Quebec and the four Atlantic Provinces. Precipitation in this area is usually ample and ranges from 30 inches in northern Ontario to 50 inches in coastal Nova Scotia and Newfoundland. Snowfall is also abundant in winter, there being little seasonal variation in precipitation. July temperatures average between 65°F. and 70°F. and January temperatures from 10°F. to 25°F. Climatic conditions in general are modified in southwestern Ontario by the Great Lakes and those along the coastal areas by the Gulf of St. Lawrence and the Atlantic Ocean. In southern Ontario high sensible humidity or sultry conditions are felt more often than in any other area in Canada but these spells usually last only a few days at a time.

The following table gives temperature and precipitation data for typical stations in the various regions of Canada. Temperatures in this table refer to observations taken in a thermometer shelter which has been placed in a representative location with the thermometer bulbs four feet above the surface of the ground. Mean January and July temperature data are based on records over the 30-year period from 1921 to 1950 except for far northern stations where the available period of record is shorter. After an average temperature is obtained for each day in January over a 30-year period, the mean January temperature may be arrived at by striking a mean of these 930 daily values. The mean July temperatures may be obtained in a similar manner. The highest and lowest temperatures on record refer to the absolute extremes for the entire period of record at each station. Average dates are shown for the last occurrence in spring of a temperature of 32°F. or lower and for the first occurrence in autumn of freezing temperatures at the four-foot level in the thermometer shelter.

The official Canadian rain gauge is a small cylinder in which the rain is caught and then measured to one-hundredth of an inch with a simple measuring device. Freshly fallen snow is measured as it lies on the ground and recorded to the tenth of an inch. Total precipitation values as shown in the table are the sum of the total rainfall and one-tenth of the total snowfall. This assumes a specific gravity of 0.1 for freshly fallen snow. Snow gauges are being installed at many of the main observing stations in the country. At these stations it will be possible to observe and record the snow density for each snowfall. For the purposes of this table, a day with precipitation is one on which at least one-hundredth of an inch of rain or one-tenth of an inch of snow has fallen.

Temperature and Precipitation Data for Typical Stations in the Various Districts

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F. or Lower)		Total (All Forms) ¹	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
Newfoundland—									
Island of Newfoundland—									
Belle Isle.....	11.0	48.6	73	-31	June 19	Sept. 24	33.19	98.8	152
Cander.....	18.6	61.6	96	-15	June 1	Oct. 3	39.50	119.2	194
St. Andrew's.....	22.9	59.7	81	-11	June 11	Sept. 28	42.47	54.8	156
St. John's.....	24.0	66.0	93	-21	June 2	Oct. 10	53.09	114.1	201
Labrador—									
Cartwright.....	4.2	55.2	97	-36	June 26	Sept. 9	40.31	200.6	165
Goose.....	0.8	60.5	100	-38	June 10	Sept. 14	28.66	140.9	164
Nain.....	-2.5	50.4	91	-37	July 3	Aug. 12	29.56	128.2	121
Maritime Provinces—									
Prince Edward Island—									
Charlottetown.....	18.8	66.6	98	-27	May 16	Oct. 14	43.13	112.7	156
Nova Scotia—									
Annapolis Royal.....	24.4	65.3	91	-13	May 20	Oct. 6	41.35	68.0	144
Halifax.....	24.4	65.0	99	-21	May 13	Oct. 12	54.26	64.1	159
Sydney.....	22.7	65.0	98	-25	May 29	Oct. 13	56.61	96.6	169
Yarmouth.....	27.0	61.6	86	-12	May 7	Oct. 14	47.08	83.1	151
New Brunswick—									
Chatham.....	12.7	66.5	102	-43	May 21	Sept. 28	36.71	88.5	152
Grand Falls.....	8.7	64.7	98	-46	May 28	Sept. 20	38.42	106.3	101
Moncton.....	16.1	65.8	99	-33	June 1	Sept. 14	40.97	108.4	130
Saint John.....	19.8	61.8	93	-22	May 4	Oct. 16	47.39	80.0	170
Quebec—									
Northern—									
Fort Chimo.....	-13.0	52.6	90	-51	June 25	Aug. 14	16.37	68.8	157
Knob Lake.....	-11.9	55.1	88	-59	June 21	Aug. 30	27.55	128.6	193
Nitchequon.....	-12.6	55.9	90	-57	June 14	Sept. 13	30.88	116.3	193
Port Harrison.....	-14.8	46.8	86	-57	July 5	Aug. 20	14.64	73.3	134
Southern—									
Bagotville.....	2.9	63.8	96	-46	June 1	Sept. 16	38.72	130.3	160
Father Point.....	10.8	58.4	90	-32	May 22	Sept. 26	33.56	108.0	147
Montreal.....	15.4	70.4	97	-29	Apr. 28	Oct. 17	41.80	100.8	160
Quebec.....	12.0	67.6	97	-34	May 11	Oct. 5	44.76	123.7	171
Sept. Iles.....	3.2	59.2	90	-46	June 4	Sept. 10	41.94	165.5	143
Sherbrooke.....	14.8	67.8	98	-42	May 18	Sept. 23	38.93	97.2	176
Ontario—									
Northern—									
Kapuskasing.....	-1.3	62.8	101	-53	June 14	Sept. 5	27.99	95.8	142
Port Arthur—									
Fort William.....	7.6	63.4	104	-42	June 4	Sept. 7	31.62	93.4	137
Sioux Lookout.....	-1.3	65.0	103	-51	June 1	Sept. 15	27.45	74.5	157
Trout Lake.....	-11.9	61.2	95	-54	June 16	Sept. 15	24.74	85.1	146
Southern—									
London.....	22.5	69.6	106	-27	May 16	Oct. 1	38.24	77.0	160
Ottawa.....	12.0	68.6	102	-38	May 11	Sept. 29	34.89	80.5	145
Parry Sound.....	16.2	67.8	100	-39	May 15	Oct. 2	37.87	118.2	162
Toronto.....	24.5	70.8	105	-26	May 3	Oct. 15	30.93	54.6	143
Windsor.....	24.5	73.0	101	-27	Apr. 29	Oct. 15	33.43	35.8	139
Prairie Provinces—									
Manitoba—									
Churchill.....	-17.3	54.7	96	-57	June 28	Aug. 30	15.01	55.2	102
The Pas.....	-6.2	64.9	100	-54	May 30	Sept. 9	16.98	53.2	102
Winnipeg.....	0.6	68.4	108	-54	May 27	Sept. 15	19.72	49.4	119

¹ Total rainfall and one-tenth of the total snowfall.

Temperature and Precipitation Data for Typical Stations in the Various Districts—concluded

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F. or Lower)		Total (All Forms) ¹	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
Prairie Provinces—concl.							in.	in.	
Saskatchewan—									
Regina.....	2.3	66.6	110	-56	June 5	Sept. 6	15.09	40.1	113
Saskatoon.....	0.8	66.4	104	-55	May 24	Sept. 13	14.40	36.1	104
Swift Current.....	9.8	67.2	107	-54	May 27	Sept. 10	14.89	40.2	112
Alberta—									
Beaverlodge.....	9.7	60.2	98	-54	May 30	Sept. 1	17.32	68.2	127
Calgary.....	15.8	62.4	97	-49	June 3	Sept. 3	17.47	57.0	105
Edmonton.....	7.7	62.9	99	-57	May 29	Sept. 6	17.63	52.9	126
Medicine Hat.....	13.7	70.2	108	-51	May 15	Sept. 18	13.55	41.6	98
British Columbia—									
Pacific Coast and Coastal Valleys—									
Estevan Point.....	40.4	56.3	80	7	Apr. 3	Nov. 12	107.66	10.2	203
Langara.....	37.3	54.2	78	6	Apr. 2	Dec. 2	67.79	20.8	255
Prince Rupert.....	35.7	56.2	88	-6	Apr. 19	Nov. 3	94.00	32.1	229
Vancouver.....	37.6	64.4	92	2	Apr. 1	Nov. 5	56.83	24.5	179
Victoria.....	39.2	60.0	95	-2	Feb. 28	Dec. 7	26.18	10.1	149
Southern Interior—									
Glacier.....	13.6	57.9	98	-32	June 10	Sept. 8	52.24	342.5	192
Invermere.....	13.3	63.1	99	-43	May 27	Sept. 12	11.52	30.2	92
Kamloops.....	22.3	70.4	107	-37	Apr. 25	Oct. 8	10.14	29.4	83
Penticton.....	26.7	68.7	105	-16	May 7	Oct. 3	11.50	25.4	109
Princeton.....	17.1	63.1	107	-49	June 11	Sept. 4	13.30	49.2	105
Central Interior—									
Barkerville.....	16.0	54.5	96	-52	June 25	Aug. 16	43.83	220.4	187
McBride.....	17.2	59.2	100	-50	June 18	Aug. 23	19.73	74.2	125
Prince George.....	14.6	59.6	102	-58	June 17	Aug. 24	22.16	66.5	166
Smithers.....	15.7	58.8	92	-47	June 22	Aug. 11	19.09	67.1	147
Northern Interior—									
Atlin.....	4.6	53.8	87	-54	June 11	Sept. 4	11.01	46.4	70
Dease Lake.....	3.6	54.4	93	-60	July 2	Aug. 13	15.29	66.7	144
Fort Nelson.....	-7.3	61.7	98	-61	May 24	Sept. 2	16.37	66.8	115
Fort St. John.....	5.2	61.1	92	-53	May 25	Sept. 1	14.94	62.5	122
Smith River.....	-6.0	56.8	92	-74	July 2	Aug. 11	18.14	75.4	151
Yukon Territory—									
Dawson.....	-16.0	59.8	95	-73	June 4	Aug. 21	12.73	52.5	119
Snag.....	-13.2	56.8	89	-81	June 17	Aug. 7	13.82	52.8	109
Watson Lake.....	-7.6	58.7	93	-74	June 1	Aug. 25	16.75	77.0	141
Whitehorse.....	5.2	56.2	91	-62	June 10	Aug. 27	10.67	43.7	92
Northwest Territories—									
Mackenzie Basin—									
Fort Good Hope.....	-21.0	59.8	95	-79	June 14	Aug. 6	12.18	57.3	110
Fort Simpson.....	-15.1	62.4	97	-69	June 4	Aug. 28	12.13	45.2	97
Hay River.....	-11.6	59.8	96	-62	June 11	Sept. 7	12.02	46.8	99
Barrens—									
Baker Lake.....	-30.0	50.5	82	-58	July 2	Aug. 24	6.72	21.8	71
Chesterfield.....	-25.6	48.0	86	-60	June 30	Sept. 4	11.14	51.5	96
Coppermine.....	-19.0	49.0	87	-58	June 28	Aug. 18	10.87	55.5	105
Arctic Archipelago—									
Clyde.....	-15.3	40.1	71	-47	2	2	10.04	69.4	89
Eureka.....	-36.3	41.9	67	-63	June 25	Aug. 10	2.61	13.9	50
Frobisher Bay.....	-15.8	47.5	76	-49	June 24	Aug. 27	13.53	73.1	104
Mould Bay.....	-28.9	38.0	59	-63	2	2	3.25	19.1	74
Resolute.....	-28.2	39.7	60	-61	2	2	5.28	28.0	93

¹ Total rainfall and one-tenth of the total snowfall.² No appreciable period free from frost.

Section 2.—Meteorological Observing Stations in Canada*

In 1961, official meteorological observations were taken and recorded at some 2,049 weather reporting stations in Canada. There are several different classes of stations, ranging from the first-order reporting stations at airports where hourly observations of all aspects of the weather are recorded, to the co-operative precipitation observing stations where a volunteer observer makes daily observations of rainfall and snowfall.

The official recording of weather observations in Canada began early in 1840. Although there were some scattered weather records prior to that date, it was at the Toronto Observatory, established by the British Government, that the first scientifically precise Canadian weather observations were recorded. Several additional observing stations were established in the 1860's after control of meteorological work had passed into local government hands and a national meteorological service was organized in 1871. By 1876 there were more than 100 stations, 15 of them reporting daily by telegraph to Toronto for forecasting purposes.

Since then, the number of meteorological observing stations has grown steadily. As the mid-west opened up around the turn of the century, observing stations were established in that area, and during the past three decades in the sub-Arctic and Arctic regions. At the same time, the coverage has improved in the older settled portions of southeastern Canada. While there are vast areas of Canada where the weather stations are several hundred miles apart, most of the settled parts of the country are represented by first-order hourly reporting stations every 100 miles or so, and by co-operative climatological observing stations at least every 25 miles.

Of the 2,049 weather reporting stations across Canada, about 274 are classified as first-order synoptic stations. At most of these stations complete weather observations are made every six hours and at a large percentage of them only slightly less complete observations for aviation forecasts are made every hour. These weather data, including information on temperature, precipitation, pressure, wind, humidity, cloud and visibility, are sent first by radio and teletype to the different weather offices across the Continent to be used for weather forecasting purposes, and then at each month-end the manuscript reports are sent by mail to Meteorological Branch Headquarters for use in compiling climatic statistics. At some 90 of these observing stations, personnel of the Telecommunications Branch of the Department of Transport take weather observations as part of their scheduled duties, and 35 stations are operated in a similar manner by the different Armed Services; 70 stations are operated by Meteorological Branch personnel and the remainder are operated under contract, mainly by various transportation and communications companies.

Twice daily at 34 locations throughout the country, complete upper air observations are made from the surface to altitudes upwards to 100,000 feet. Pressure, temperature and humidity measurements are determined by radiosonde instruments carried aloft by balloons and the information reported by radio to the ground receiving station; winds are determined by observing the drift of the balloon by means of radar or radio direction finding ground equipment. There are also 38 other locations where the winds in the lower layers of the atmosphere are determined by observing free balloon drift by means of a theodolite or by radar. As in the case of the first-order synoptic reporting stations, these upper air weather observations are made available immediately to forecast offices for weather forecasting purposes, and the manuscript reports are collected at Meteorological Branch Headquarters for compilation of climatic statistics.

About 1,100 weather observing stations in Canada are classified as climatological stations where the observers record temperature extremes and precipitation once or twice daily and send in monthly data sheets. Most of these observers serve on a voluntary basis and willingly spend several hours a month on their hobby. They come from all walks of life—farmers, business men, clergymen, retired people, etc. In addition, many governmental and industrial organizations such as agricultural experimental farms and

* Prepared by the Meteorological Branch, Department of Transport, Toronto.

power companies have incorporated brief climatological duties into the general work of some of their employees. These climatological stations have contributed much useful information on temperature and precipitation for publication by the Meteorological Branch.

There are about 630 stations classified as precipitation stations where rainfall and snowfall only are observed and recorded. Since precipitation varies more rapidly than temperature over short distances, a dense network of these stations is required, especially in large urban areas. Finally, there are about 45 miscellaneous stations where observations of wind, sunshine and temperature are taken for special purposes. In all, the total number of weather stations in Canada has been growing at a rate of more than 50 a year for the past decade and thus a steadily increasing climatic intelligence is assisting Canadians in all economic pursuits.

Section 3.—Standard Time and Time Zones

Standard time, which was adopted at a World Conference held at Washington, D.C., in 1884, sets the number of time zones in the world at 24, each zone extending over one twenty-fourth of the surface of the earth and including all the territory between two meridians 15° longitude apart. The basis of world time is Greenwich time and all other time zones are a definite number of hours behind Greenwich.

Canada has seven time zones, the most easterly being Newfoundland standard time, three hours and thirty minutes behind Greenwich time. In the west, Pacific standard time, used throughout British Columbia and part of the Northwest Territories, is eight hours behind Greenwich, and Yukon standard time, used throughout the Yukon Territory, is nine hours behind Greenwich. Some municipalities adopt the time used by the local railways which, in certain cases, differs from the standard. There are also villages that adopt such time as seems best to suit their convenience but in general the legal boundaries of the different time zones are actually in use.



Daylight Saving Time.—For some years before World War I there was active propaganda, particularly in the cities, for the use during the summer months of an earlier time usually referred to as 'daylight saving time', one hour ahead of standard time. It was considered from the economic as well as from the health point of view that people in industrial towns and cities would gain by having longer periods of sunlight at their disposal for recreation. Canada adopted daylight saving time in 1918 but the Canadian Act lapsed at the end of that year. Since that date, however, most cities and towns have adopted daylight saving for varying periods in the summer months.

Legal Authority for the Time Zones.—Most of the regulations made in Canada concerning standard time have been passed by the provincial legislatures and the Northwest Territories Council. Legislation, besides determining the boundaries of zones, regulates such matters as the times of coming into effect or expiration of Acts, ordinances, contracts and agreements, times of opening and closing registration offices, law courts, post offices and other public offices, times of open or close seasons for hunting and fishing, and times of opening and closing business houses and places of amusement.

PART V.—GEOPHYSICS AND ASTRONOMY

Section 1.—Geophysics*

Geophysics is the study of the earth, including the oceans and atmosphere, by the methods of physics. Because it extends over such a very wide range of topics, it is generally divided into seven fields, each a well developed science in itself. Of these, one of the oldest is geodesy, the study of the earth's shape, and of variations in the gravitational attraction of the earth, which are related to the shape. Seismology originally was the study of earthquakes but it now includes investigations of the earth's interior by means of vibrational waves, which may be produced by explosions as well as earthquakes. Meteorology deals with the atmosphere, and hydrology deals with the surface waters of the earth, excluding the oceans but including ice and snow. The study of the oceans, their currents and bottom profiles, forms a subject in itself—oceanography. Geomagnetism is involved with the earth's magnetic field and with many related phenomena, such as the ionosphere and the radiation belts that surround the earth. Finally, volcanology is the study not only of existing volcanoes but of volcanoes of the past and of the rocks they produced.

The seven fields all deal with the investigation of some major property of the earth. They may be considered as pure sciences but it is apparent that they all have applications that are vital to modern life. The findings of geodesy on the precise shape of the earth are needed for accurate maps. The search for minerals and oil by scientific methods makes use of the techniques of gravity measurements, seismology and geomagnetism. Meteorology obviously has great practical importance, and the contributions of hydrology to water supply problems and of oceanography to the fisheries are also very large.

Activity in geophysics continued to increase in Canada during 1961. Historically, those fields of greatest application in this country were developed first but work is now in progress in all branches of the subject. Geophysical studies are conducted by a number of groups in the Department of Mines and Technical Surveys, the Department of Northern Affairs and National Resources, the Department of Transport, the National Research Council, the Defence Research Board, several provincial laboratories and virtually all universities. Research in geophysics in Canadian universities is generally carried on in the departments of physics or geology, although in the University of Western Ontario there is a Department of Geophysics. At least nine universities offer courses in geophysics, which can be taken by students intending to pursue geophysical research or to apply it in mining or petroleum exploration.

* Prepared by Dr. G. S. Garland, Physics Department, University of Alberta, Edmonton.

In the field of geodesy, the work of precisely locating points upon the earth's surface is performed by the Geodetic Survey, Department of Mines and Technical Surveys. Nets of triangulation, the basis for the most accurate horizontal control, were extended toward the Arctic Coast in the Northwest Territories and in northern Quebec. Research was continued on the electronic measurement of distances, which has been widely used throughout the North for preliminary geodetic surveys and now promises to accelerate the precise location of points. The Geodetic Survey is also responsible for determining the height of the land surface above sea level and during the year it extended its network of level lines. Measurements of gravity are used to determine the shape of the sea level surface of the earth and a broad program of observations over the country is being conducted by the Dominion Observatory, Department of Mines and Technical Surveys. During 1961, measurements were made in Eastern Canada north to Ungava Bay, by a party using *Beaver* aircraft for transportation and landing on lakes to make the observations. Gravity readings provide information on the structure of the earth's crust as well as on the shape of the earth, and a large number of observations were made in the Arctic as part of the study of the polar continental shelf. Many of these were made on sea ice. Some measurements were made in Hudson Bay by lowering an instrument to the bottom. A number of universities, notably the University of Manitoba, include gravity measurements in the study of geological structures and the method is also used in the reconnaissance phase of oil exploration in Western Canada.

The recording of waves from earthquakes is an activity of the Dominion Observatory, which maintains seismograph stations at Halifax, Montreal, London, Alert, Resolute, Mould Bay, Penticton, Victoria, Banff and Shawinigan, as well as at Ottawa. This represents a considerable expansion over previous years, and more stations will be established until they are located at intervals of 500 miles over the entire country. The detailed study of waves that have passed through the earth is one of the most powerful methods of studying the interior, and also provides an important method of detecting nuclear explosions. Theoretical investigations on the stress systems in the earth responsible for earthquakes are in progress at the Dominion Observatory and the University of Toronto. Seismological studies using explosions are useful in studying geological structures in the earth's crust, and measurements of this type were made by the Geological Survey, Department of Mines and Technical Surveys, in Sverdrup Basin, as part of the Polar Continental Shelf Project; in the vicinity of Vancouver Island by the University of British Columbia; and in northern Manitoba by the University of Saskatchewan. Seismic studies continue to be the chief geophysical method used in oil and gas exploration, with most of the operations being conducted in the winter because of muskeg conditions in northwestern Canada.

The Meteorological Branch of the Department of Transport is responsible not only for routine meteorological observations and forecasting but also for research into the physics of the earth's atmosphere. The other principal research centre in the field is the Department of Meteorology, McGill University. Canada offers a large scope for meteorological research because of the importance of the arctic air mass to the weather of a large portion of the world, and the existence of the jet stream of high wind velocity that crosses the country. Current interest includes the increased use of high-speed electronic computers to solve the complex problems encountered. Special programs involve the use of radar methods to study stormy weather conditions, in particular hail-producing storms in Alberta. A series of measurements on the speed of sound through the air from the explosion in August of 100 tons of TNT by the Defence Research Board at Suffield, Alta., is being analysed at the University of Alberta to provide information on upper air temperatures.

The importance of water as a national resource is being increasingly recognized and work in hydrology plays an important role in water conservation. Studies in surface waters, run-off, snowfall accumulation and underground water movements are included in the programs of the Water Resources Branch, Department of Northern Affairs and National Resources, and of several provincial groups and universities. Research in the field involves both field studies to provide the basic information and theoretical work on

the flow of water through soils and rocks. Canada has a great number of glaciers, the study of which is becoming increasingly important. Glaciers are an important source of water for many rivers of Western Canada and, in addition, their fluctuations provide a useful record of climatic variations. During 1961, field studies in no less than 15 areas of the Arctic and western mountains were made by expeditions from the Department of Mines and Technical Surveys, the Department of Northern Affairs and National Resources, the Defence Research Board, Arctic Institutes and university groups. The measurements made in the field included ice thickness determinations by geophysical methods, ice flow measurements and local meteorology. A complete inventory of Canadian glaciers is being prepared by the Geographical Branch, Department of Mines and Technical Surveys.

The study of the earth's magnetism has been important to navigators for many years but recently the subject has been greatly enlarged to include investigations on the cause of the magnetic field, the magnetic properties of rocks, and the effect of magnetic forces on the electrically charged particles in the upper atmosphere. In 1961 the Dominion Observatory made observations by aircraft along 45,000 miles of line over central Canada to provide information for magnetic charts and established new observatories for recording magnetic changes at Alert and Mould Bay in the Northwest Territories to supplement the work of previously established observatories at Agincourt, Ont., Meanook, Alta., Victoria, B.C., and Baker Lake and Resolute, N.W.T. The Geological Survey made airborne magnetometer surveys over many parts of the country to produce detailed maps of the magnetic field, which are of use in the study of geological structures and the location of mineral deposits. Surveys were conducted in the Yukon and Northwest Territories and, in co-operation with provincial governments concerned, in British Columbia, Ontario and Saskatchewan; 91 map sheets were issued during the year. Similar airborne surveys were conducted by the mining industry.

The study of the magnetic properties of rocks is important in studying the history of the earth's magnetism, which throws light on such fascinating possibilities as wandering of the earth's poles and moving of the continents. Measurements of this type were continued during 1961 at the Geological Survey and the Universities of Toronto, Alberta and Western Ontario.

Studies on the magnetic and electric properties of the earth's upper atmosphere have benefited in recent years by improved facilities, such as rockets, to carry instruments aloft and by new techniques that can be used from the ground. Canada is in a favourable position for such research because the belt of disturbances that produce the northern lights or aurora crosses the country. Such studies have a very important practical application to the problem of radio communication during periods of magnetic storms. The Institute of Upper Atmospheric Physics at the University of Saskatchewan is particularly involved, as are the University of Western Ontario and several laboratories of the Defence Research Board and the National Research Council. (See also Chapter VIII, Part III, Section 3 which relates to Space Research in Canada.)

Studies of very small, rapid pulsations of the earth's magnetism produced by electric currents in the high atmosphere can provide further information on this region. These pulsations are being studied by the Pacific Naval Laboratory of the Defence Research Board and by the Universities of British Columbia and Alberta.

Canada is bounded on three sides by major oceans, in which the motions of water have an important bearing on fisheries, on ice conditions and shipping and on climate. Indicative of the growing importance of oceanography was the formation during 1961 of the Marine Sciences Branch of the Department of Mines and Technical Surveys, which will operate a modern laboratory for oceanography at Bedford, N.S. The Branch will co-operate with Dalhousie University in the Atlantic, and with the Institute of Oceanography, University of British Columbia, in the Pacific. Oceanographic measurements are made on cruises by specially equipped ships and include the determination of bottom topography by electronic depth sounders, ocean currents, temperature and salinity of

the water, and plankton content. Cruises have been made in the North Pacific to longitude 165° W and along the inlets of the British Columbia coast. On the East Coast, observations have been made along the Scotian shelf and north to Davis Strait. In connection with the Polar Continental Shelf Project, oceanographic measurements are being extended throughout the Arctic islands wherever possible. Similar measurements have been extended in the waters of the Great Lakes by the Great Lakes Institute of the University of Toronto.

While there are no active volcanoes in Canada, many of the physical studies that can be made of rocks are grouped under volcanology. The dating of rocks by radioactive methods has been especially important in this country, because of the great area of the Canadian Shield in which there are no fossiliferous rocks which can be dated by palaeontological methods. Laboratories of the Geological Survey and the Universities of Toronto, British Columbia, Alberta and St. Francis Xavier have been active in this study, which is based on the slow accumulation in rocks of certain elements formed from the radioactive decay of others. Ages as great as 2,700,000,000 years have been determined for some of the rocks of the Canadian Shield.

Late in 1961 it was announced that Canada would participate in an international study of the earth's interior, particularly the solid mantle that lies below the outer crust at a depth of some 20 to 30 miles. The project, known as the Upper Mantle Project, is being organized by the International Union of Geodesy and Geophysics, to which this country adheres, and will extend from 1962 through 1964. Those fields that deal with the solid earth—such as geodesy, seismology and geomagnetism—will play an important role in the project, which is expected to yield valuable information on the earth's interior. One major result may be a better knowledge of how and where mineral deposits are produced and emplaced in the earth's crust.

Section 2.—Astronomy

The modern era of astronomy in Canada may be said to have begun in 1905 with the completion of the Dominion Observatory at Ottawa, the national observatory of Canada. Prior to that time, an astronomical observatory established in 1851 at Fredericton, N.B., was used for a short time to determine the longitude of that centre and for general astronomical purposes; it has been rehabilitated as a historic monument. Other small observatories were established, one at Quebec City in 1854 and one at Kingston in 1875. Astronomical instruments were to be associated with the Magnetic Observatory built by the British Government at Toronto in 1839 but there is no record of their being set up until 1881. A small observatory established at McGill University in 1879 was used for many years for time observations.

Today, an increasing number of universities and other scientific organizations are devoting a substantial part of their efforts to the study of astronomy and astrophysics. The Dominion Observatory at Ottawa, which with its sister institutions is administered by the Department of Mines and Technical Surveys, specializes in the astronomy of position, solar physics, meteoric astronomy and various branches of Geophysical work. This Observatory also maintains a subsidiary (the Dominion Radio Astrophysical Observatory) near Penticton, B.C., for the study of Radio Astronomy. Also associated in the same group is the Dominion Astrophysical Observatory at Victoria, B.C., which devotes its efforts to the motions and physical characteristics of the stars and of inter-stellar material. Other Federal Government institutions carrying out meteoric and radio astronomy, including a study of the upper atmosphere by essentially astronomical methods, are the National Research Council and the Defence Research Board. Solar observations at the Algonquin Radio Observatory of the National Research Council, located in Algonquin Park 150 miles west of Ottawa, are now under way. The program is being extended to

galactic studies with the addition of several new radio telescopes, including one under construction by the University of Toronto. At the Springhill Meteor Observatory, near Ottawa, studies of meteors and the aurora are carried out.

The David Dunlap Observatory of the University of Toronto carries on an active program of astrophysical research as well as the teaching of astronomy. It performs not only the functions of a privately financed and administered research institution, but is also the nucleus of the Department of Astronomy of the University of Toronto. The Physics Department of Queen's University in Kingston, which devotes considerable effort to the teaching of astronomy, has recently installed a new optical telescope and has for some time been carrying on advanced work in the science of radio astronomy. The University of Western Ontario maintains a small but active Department of Astronomy and several other Canadian universities give some instruction in astronomical science.

CHAPTER II.—CONSTITUTION AND GOVERNMENT

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

PART I.—CONSTITUTION OF CANADA

The Canadian federal state, which today comprises ten provinces and two vast northern territories, had its beginning ninety-five years ago in the enactment (Mar. 29, 1867) by the British Parliament of the British North America Act, 1867. Fashioned largely out of the Seventy-two Resolutions drafted at Quebec (1864) by the Fathers of Confederation, the British North America Act, 1867 provided for the federal union of the three British North American provinces (Canada, New Brunswick and Nova Scotia) in one Dominion under the name of "Canada".

While the new nation that came into being on July 1, 1867 was a federation comprised of four provinces, namely, Ontario, Quebec, New Brunswick and Nova Scotia, Sect. 146 of the Act provided for the admission into the Union of the Crown colonies of Prince Edward Island and Newfoundland on the Atlantic and the united (1866) island and mainland colony of British Columbia on the Pacific, and also of the vast expanse of Hudson's Bay Company territory in the North West known as "Rupert's Land and the North-Western Territory". Following the negotiation of an agreement on terms comprising the Company's surrender of its authority and territories to the Crown (which was to transfer them at once to Canada) and the retention of one-twentieth of the land of the fertile belt (the southern territories) with designated blocks of land around its trading posts and a Canadian cash payment of £300,000, the new nation of Canada was ready to expand westward with unmatched momentum across the Continent to the Pacific.

1.—Provinces and Territories of Canada, Dates of Admission to Confederation, Legislative Processes by which Admission was Effected, Present Area and Seat of Government

Province, Territory or District	Date of Admission or Creation	Legislative Process	Present Area (sq. miles)	Seat of Provincial or Territorial Government
Ontario ¹	July 1, 1867	Act of Imperial Parliament—The British North America Act, 1867 (Br. Stat. 1867, c. 3) and Imperial Order in Council, May 22, 1867.	412,582	Toronto
Quebec ²	July 1, 1867		594,860	Quebec
Nova Scotia.....	July 1, 1867		21,425	Halifax
New Brunswick.....	July 1, 1867		28,354	Fredericton
Manitoba ³	July 15, 1870	Manitoba Act, 1870 (SC 1870, c. 3) and Imperial Order in Council, June 23, 1870..	251,000	Winnipeg
British Columbia.....	July 20, 1871	Imperial Order in Council, May 16, 1871..	366,255	Victoria
Prince Edward Island....	July 1, 1873	Imperial Order in Council, June 26, 1873..	2,184	Charlotte- town
Saskatchewan ⁴	Sept. 1, 1905	Saskatchewan Act, 1905 (SC 1905, c. 42)..	251,700	Regina
Alberta ⁴	Sept. 1, 1905	Alberta Act, 1905 (SC 1905, c. 3).....	255,285	Edmonton
Newfoundland.....	Mar. 31, 1949	The British North America Act, 1949 (Br. Stat. 1949, c. 22).....	156,185	St. John's
Northwest Territories ⁵ ...	July 15, 1870	Act of Imperial Parliament—Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105), and Imperial Order in Council, June 23, 1870.....	1,304,903	Ottawa ⁷
Mackenzie ⁶	Jan. 1, 1920	Order in Council, Mar. 16, 1918.....	527,490	
Keewatin ⁶	Jan. 1, 1920		228,160	
Franklin ⁶	Jan. 1, 1920		649,253	
Yukon Territory ⁸	June 13, 1898	Yukon Territory Act, 1898 (SC 1898, c. 6).	207,076	Whitehorse
Canada.....			3,851,809	

¹ The area of Ontario was extended by the Ontario Boundaries Extension Act, 1912 (SC 1912, c. 40).

² Extended by Quebec Boundaries Extension Act, 1912 (SC 1912, c. 45) and diminished Mar. 1, 1927 in consequence of the Award of the Judicial Committee of the British Privy Council whereby approximately 112,000 sq. miles of territory (formerly considered as part of Quebec) was assigned to Newfoundland.

³ Extended by the Extension of Boundaries Act of Manitoba, 1881 and the Manitoba Boundaries Extension Act, 1912 (SC 1912, c. 32).

⁴ Saskatchewan and Alberta created as provinces in 1905 from the area formerly comprised in the provisional districts of Assiniboia, Athabaska, Alberta and Saskatchewan established May 17, 1882 by minute of Canadian Privy Council concurred in by Dominion Parliament and Order in Council, Oct. 2, 1895.

⁵ By an Imperial Order in Council passed on June 23, 1870 pursuant to the Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105), the former territories of the Hudson's Bay Company known as Rupert's Land and the North-Western Territory were transferred to Canada effective July 15, 1870. These territories were designated as the North-West Territories by the Act of SC 1869, c. 3 and as the Northwest Territories by RSC 1906, c. 62. By Imperial Order in Council of July 31, 1880 (effective Sept. 1, 1880), all British territories and possessions in North America not already included within Canada and all islands adjacent thereto (with the exception of the Colony of Newfoundland and its dependencies) were annexed to Canada and these additional territories were formally included in the North-West Territories by SC 1905, c. 27. The Province of Manitoba was formed out of a portion of the territories by the Manitoba Act, 1870 (SC 1870, c. 3) and a further portion was added to Manitoba in 1881 by SC 1881, c. 14. The Provinces of Alberta and Saskatchewan were formed out of portions of the territories in 1905 and in 1912 other portions were added to Manitoba, Ontario and Quebec.

⁶ By SC 1876, c. 21, a separate district to be known as the District of Keewatin was established and provision was made for the local government thereof. The Act was expressed to come into force by proclamation. It provided that portions of the District might be re-annexed to the North-West Territories by proclamation; in 1886 a portion of the District of Keewatin was re-annexed and in 1905 the entire Keewatin District was re-annexed. The Act of 1876 was never proclaimed. By Order in Council of May 8, 1882 the provisional districts of Assiniboia, Saskatchewan, Alberta and Athabaska were created for the convenience of settlers and for postal purposes. By Order in Council of Oct. 2, 1895 the further provisional districts of Ungava, Franklin, Mackenzie and Yukon were created. The boundaries of these provisional districts were re-defined by Order in Council of Dec. 18, 1897. Subsequently the Yukon Territory was formed, the Provinces of Alberta and Saskatchewan were created and other portions of the territories were annexed to Quebec, Ontario and Manitoba. By Order in Council dated Mar. 16, 1918 (effective Jan. 1, 1920) the remaining portions of the Northwest Territories were divided into three provisional districts known as Mackenzie, Keewatin and Franklin.

⁷ See p. 86.

⁸ The provisional district of Yukon established in 1895 was created a judicial district of the North-West Territories by proclamation issued pursuant to Sect. 51 of the North-West Territories Act (RSC 1886, c. 50) on Aug. 16, 1897 and by the Yukon Territory Act (SC 1898, c. 6) was declared to be a separate Territory.

The acquisition by Canada of Rupert's Land and the North-Western Territory enabled the Red River settlement, after a few months of disturbance, to receive limited provincial establishment under the name of "Manitoba" in 1870; provided the Federal Government with the public lands needed to help subsidize a transcontinental railway linking the Pacific with the Canadian East, thereby fulfilling the pledge to British Columbia to begin the Canadian Pacific Railway within two years and to complete it within ten years of the date of union, July 20, 1871; and laid, through the provision of millions of acres of public lands, the land and economic bases for the Federal Government's adoption of a free-homestead policy for the Canadian prairies that, in conjunction with the completion of the Canadian Pacific Railway and the launching of other railway lines, brought wave after wave of settlers into the Northwest Territories in such numbers as to justify the creation of the two Provinces of Saskatchewan and Alberta in 1905 out of the portion of the Northwest Territories south of the 60th parallel of north latitude. Although provision for their entry was included in the British North America Act, 1867, the Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

The Constitution of Canada, which had a corporate beginning in 1867, combines, in a set of rules determining the creation and operation of the machinery or institutions of government, the Cabinet system of responsible government (based on an inheritance from Britain) with a Canadian adaptation of federalism (as then practised in the United States for eighty years). A written document, the British North America Act of 1867, contains a substantial portion of Canada's Constitution and this Act, with its various amendments,* is popularly held to be the Canadian Constitution. There is, however, another and perhaps more important part which appears, through the evolutionary processes of historical growth, in various guises including well-established usages and conventions found in the unwritten provisions of the Constitution.

Thus, the British North America Act is not a comprehensive constitutional document presenting an exhaustive statement of fundamental laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other British statutes (such as the Statute of Westminster, 1931) and Orders in Council (notably those admitting various provinces and territories to the federation), statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the Royal Style and Titles, the Governor General, the Senate, the House of Commons, the creation of courts, the establishment of government departments, the franchise, elections, and also statutes of provincial legislatures relating to provincial constitutional institutions and government matters. Federal and provincial Orders in Council, legally authorized by their respective statutes, provide further constitutional material as do the decisions of the courts which interpret the British North America Act and all ordinary statutes and indeed possess the power to set aside any laws which they hold to be *ultra vires* or beyond the jurisdiction of the enacting legislative bodies, whether federal or provincial. Moreover, the Canadian Constitution comprises, in addition to the statutory law and its judicial interpretation, substantial sections of the common law, unwritten constitutional usages and conventions and principles of democratic government which were transplanted from Britain over two hundred years ago and have since then been thriving and evolving in the Canadian environment. For example, the Cabinet system of responsible government (see pp. 55-57) and its functioning through close identification of the executive and the legislative powers (that is, of the Cabinet and the House of Commons) is not mentioned in the British North America Act but derives from an unwritten convention of the Constitution.

* See *A Consolidation of The British North America Acts 1867 to 1952*, prepared by Elmer A. Driedger (Queen's Printer, Ottawa, 1956, 50 cents).

Although the essential principles of Cabinet government are based in custom or constitutional usage, the federal structure of Canadian government rests on the explicit written provisions of the British North America Act. Apart from the creation of the federal union, the dominant feature of the Act and indeed of the Canadian federation was the distribution of powers between the central or federal government on the one hand and the component provincial governments on the other. In brief, the primary purpose was to grant to the Parliament of Canada legislative jurisdiction over all subjects of general or common interest, while giving to the provincial legislatures jurisdiction over all matters of local or particular interest (see pp. 59-60 and 73-74).

Unlike the written constitutions of many nations, the British North America Act lacks comprehensive "bill of rights" clauses, although it does accord specific constitutional protection to the use of the English and French languages (clause 133) and special safeguards with respect to sectarian or denominational schools. Such vital rights as freedom of speech, freedom of assembly, freedom of religion, freedom of the press, trial by jury and similar liberties enjoyed by the individual citizen are not recorded in the British North America Act but rather depend on the statute law and the common law inheritance. Additional security of these rights may be expected to flow from the recent passage of a Canadian Bill of Rights—An Act for the Recognition and Protection of Human Rights and Fundamental Freedoms (SC 1960, c. 44), assented to Aug. 10, 1960.

No provision was made in the British North America Act of 1867 for amendment thereof by any legislative authority in Canada but both the Parliament of Canada and the provincial legislatures were given legislative jurisdiction with respect to some matters relating to government. Thus, for example, the Parliament of Canada was given jurisdiction with respect to the establishment of electoral districts and election laws and the privileges and immunities of Members of the House of Commons and the Senate, and each provincial legislature was empowered to amend the constitution of the province except as regards the office of Lieutenant-Governor. By an amendment to the British North America Act passed in 1949, the authority of the Parliament of Canada to legislate with respect to constitutional matters was considerably enlarged and it may now amend the Constitution of Canada except as regards the legislative authority of the provinces, the rights and privileges of provincial legislatures or governments, schools, the use of the English or the French language, and the duration of the House of Commons other than in time of real or apprehended war, invasion or insurrection.

The question of devising amendment procedure within Canada which satisfies the need to safeguard or entrench such basic provincial and minority rights as are noted immediately above and yet possesses sufficient flexibility to ensure that the Constitution can be altered to meet changing circumstances is one that still engages the attention of the federal and provincial governments and legislatures. The constitutional background to the problem, the present amending procedures, the attempts since 1935 to devise amending procedures, and the complexities inherent in amendment of a federal constitution are all discussed in a special article published in the 1961 Canada Year Book, pp. 51-57, entitled "Amendment of the Canadian Constitution".* The only barrier to Canada's complete control over the amendment of its own written constitution (i.e., the British North America Act of 1867, a statute of the British Parliament) has been the inability of the Canadian people and their elected representatives in the federal and provincial fields to draft amendment procedures on which they will be in general agreement.

* Also available in reprint form from the Dominion Bureau of Statistics, Ottawa, 25 cents.

PART II.—MACHINERY OF GOVERNMENT

Section 1.—The Federal Government

Subsection 1.—The Executive

The Crown.—The British North America Act provides that “the Executive Government and authority of and over Canada is . . . vested in the Queen”. The functions of the Crown, which are substantially the same as those of the Queen in relation to the British Government are discharged in Canada by the Governor General in accordance with established principles of responsible government. The practical executive functions of government are exercised by the Cabinet.

The Queen.—The personal participation of the Queen in the functions of the Crown in Canada has been limited to such occasions as the granting of honours and awards, approval of changes in the Table of Precedence, institution of new military awards, or the periodic appointment of a Governor General. On the occasion of a royal visit, the Queen may participate in those ceremonies that otherwise are carried out in her name, such as the opening and dissolution of Parliament, the assent to Bills, and the granting of a general amnesty.

Apart from her constitutional position in relation to the various governments of the Commonwealth countries, the Queen is Head of the Commonwealth and symbolizes the association of the member countries. Until 1953 the title of the Queen was the same throughout the Commonwealth. Constitutional developments put the title somewhat out of accord with the facts of the position, and in December 1952 it was decided by the Prime Ministers of the Commonwealth countries meeting at London, England, that new forms of title for each country should be devised. The title for Canada was approved by Parliament and established by a Royal Proclamation on May 29, 1953. The title of the Queen, so far as Canada is concerned, now is:—

“Elizabeth the Second, by the Grace of God of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith”.

1.—Sovereigns of Canada since Confederation, 1867

Name	Dynasty	Year of Birth	Date of Accession
Victoria.....	House of Hanover.....	1819	June 20, 1837
Edward VII.....	House of Saxe-Coburg and Gotha.....	1841	Jan. 22, 1901
George V.....	House of Windsor.....	1865	May 6, 1910
Edward VIII.....	House of Windsor.....	1894	Jan. 20, 1936
George VI.....	House of Windsor.....	1895	Dec. 11, 1936
Elizabeth II.....	House of Windsor.....	1926	Feb. 6, 1952

The Governor General.—The Governor General, appointed by the Queen as her personal representative on the advice of the Prime Minister of Canada, traditionally serves for a term of five years. He exercises the executive authority of the Queen in relation to the Government of Canada under Letters Patent issued under the Great Seal of Canada (revised and re-issued, effective Oct. 1, 1947) and the provisions of the British North America Acts, 1867 to 1952. Acting under the recommendations of his responsible Ministers, in the Queen’s name, he summons, prorogues and dissolves Parliament, assents to Bills, and exercises other executive functions.

The Governor General's annual salary and allowances provided by the Parliament of Canada are \$48,666 and \$100,000, respectively. In addition, other expenses of office are provided for, including the salary of the Governor General's secretary.

The present Governor General is styled His Excellency Major-General Georges P. Vanier, D.S.O., M.C., C.D.

2.—Governors General of Canada since Confederation, 1867

Name	Date of Appointment	Date of Assumption of Office
VISCOUNT MONCK, G.C.M.G.....	June 1, 1867	July 1, 1867
LORD LISGAR, G.C.M.G.....	Dec. 29, 1868	Feb. 2, 1869
The EARL OF DUFFERIN, K.P., K.C.B., G.C.M.G.....	May 22, 1872	June 25, 1872
The MARQUIS OF LORNE, K.T., G.C.M.G.....	Oct. 5, 1878	Nov. 25, 1878
The MARQUIS OF LANSDOWNE, G.C.M.G.....	Aug. 18, 1883	Oct. 23, 1883
LORD STANLEY OF PRESTON, G.C.B.....	May 1, 1888	June 11, 1888
The EARL OF ABERDEEN, K.T., G.C.M.G.....	May 22, 1893	Sept. 18, 1893
The EARL OF MINTO, G.C.M.G.....	July 30, 1898	Nov. 12, 1898
EARL GREY, G.C.M.G.....	Sept. 26, 1904	Dec. 10, 1904
FIELD MARSHAL H. R. H. The DUKE OF CONNAUGHT, K.G.....	Mar. 21, 1911	Oct. 13, 1911
The DUKE OF DEVONSHIRE, K.G., G.C.M.G., G.C.V.O.....	Aug. 19, 1916	Nov. 11, 1916
GENERAL The LORD BYNG OF VIMY, G.C.B., G.C.M.G., M.V.O.....	Aug. 2, 1921	Aug. 11, 1921
VISCOUNT WILLINGDON OF RATTON, G.C.S.I., G.C.I.E., G.B.E.....	Aug. 5, 1926	Oct. 2, 1926
The EARL OF BESSBOROUGH, G.C.M.G.....	Feb. 9, 1931	Apr. 4, 1931
LORD TWEEDSMUIR OF ELSFIELD, G.C.M.G., G.C.V.O., C.H.....	Aug. 10, 1935	Nov. 2, 1935
MAJOR-GENERAL The EARL OF ATHLONE, K.G., P.C., G.C.B., G.C.M.G., G.C.V.O., D.S.O.....	Apr. 3, 1940	June 21, 1940
FIELD MARSHAL VISCOUNT ALEXANDER OF TUNIS, K.G., G.C.B., G.C.M.G., C.S.I., D.S.O., M.C., A.D.C.....	Aug. 1, 1945	Apr. 12, 1946
The RIGHT HONOURABLE VINCENT MASSEY, C.H.....	Jan. 24, 1952	Feb. 28, 1952
MAJOR-GENERAL GEORGES P. VANIER, D.S.O., M.C., C.D.....	Aug. 1, 1959	Sept. 15, 1959

The Cabinet.—The Cabinet is a committee of Ministers chosen by the Prime Minister generally from Members of Parliament. By convention, all members of the Cabinet must either have seats in Parliament or secure seats within a short time and, again by convention, all Ministers in charge of departments of government must be Members of the House of Commons. Ministers without Portfolio can be members of either House.

The Cabinet, under the leadership of the Prime Minister, directs the business of the Commons, initiates nearly all public Bills placed before Parliament, and has complete responsibility for the initiation of taxes and the recommendation of expenditures. Following established precedent or convention, it is always responsible to the Commons. When the Cabinet (the Government) suffers defeat on a Government Bill or a vote of censure or on a motion of want of confidence in the Commons, the existing Government or Cabinet must either resign or request a dissolution from the Governor General. If it resigns, the Governor General may call on the Leader of the Opposition in the Commons to form a new Government. Alternatively, if a Government that has been defeated in

the House is granted a dissolution and is defeated in the ensuing general election then, should no clear majority be indicated, the Government may decide (1) to remain in office and seek a vote of confidence in the House when it meets or (2) to resign immediately with the consequent result that the Governor General will ask the leader of the party with the highest number of members returned to form a new Government. These alternatives may also eventuate as a result of a general election subsequent to the normal dissolution of Parliament at or near the close of its statutory life.

The primary responsibility of the Governor General in either of the above circumstances is to provide the nation with a Cabinet or Ministry capable of conducting Her Majesty's Government with the support of the House of Commons.

Although appointed by the Governor General, Cabinet members are selected by the Prime Minister from among his party colleagues in such manner as to ensure, as far as possible, representation of the several geographical and political regions of the country and its principal ethnic, religious and social interests. Each Cabinet Minister generally assumes charge of one of the departments of government, although a Minister may hold more than one portfolio at the same time or he may hold one or more portfolios and one or more acting portfolios, or a Minister without Portfolio may hold one or more acting portfolios. In his acting capacity, the Minister exercises the same authority as if he were the Minister of the department. Sessional and other allowances received by Cabinet Ministers are given at p. 70.

3.—Prime Ministers since Confederation, 1867

Ministry	Prime Minister	Length of Administration
1	Rt. Hon. Sir JOHN ALEXANDER MACDONALD	July 1, 1867 — Nov. 5, 1873
2	Hon. ALEXANDER MACKENZIE.....	Nov. 7, 1873 — Oct. 16, 1878
3	Rt. Hon. Sir JOHN ALEXANDER MACDONALD.....	Oct. 17, 1878 — June 6, 1891
4	Hon. Sir JOHN JOSEPH CALDWELL ABBOTT.....	June 16, 1891 — Nov. 24, 1892
5	Rt. Hon. Sir JOHN SPARROW DAVID THOMPSON.....	Dec. 5, 1892 — Dec. 12, 1894
6	Hon. Sir MACKENZIE BOWELL.....	Dec. 21, 1894 — Apr. 27, 1896
7	Hon. Sir CHARLES TUPPER.....	May 1, 1896 — July 8, 1896
8	Rt. Hon. Sir WILFRID LAURIER	July 11, 1896 — Oct. 6, 1911
9	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 10, 1911 — Oct. 12, 1917 (Conservative Administration)
10	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 12, 1917 — July 10, 1920 (Unionist Administration)
11	Rt. Hon. ARTHUR MEIGHEN.....	July 10, 1920 — Dec. 29, 1921 (Unionist—"National Liberal and Conservative Party")
12	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Dec. 29, 1921 — June 28, 1926
13	Rt. Hon. ARTHUR MEIGHEN.....	June 29, 1926 — Sept. 25, 1926
14	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Sept. 25, 1926 — Aug. 6, 1930
15	Rt. Hon. RICHARD BEDFORD BENNETT.....	Aug. 7, 1930 — Oct. 23, 1935
16	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Oct. 23, 1935 — Nov. 15, 1948
17	Rt. Hon. LOUIS STEPHEN ST. LAURENT.....	Nov. 15, 1948 — June 21, 1957
18	Rt. Hon. JOHN GEORGE DIEFFENBAKER.....	June 21, 1957 — ...

4.—Members of the Eighteenth Ministry, as at Jan. 31, 1962¹

(According to precedence of Ministers)

NOTE.—A complete list of the members of Federal Ministries from Confederation to 1913 appears in the 1912 Year Book, pp. 422-429. Later Ministries will be found in subsequent editions.

Office	Occupant	Date of First Appointment	Date of Appointment to Present Portfolio
Prime Minister.....	Rt. Hon. JOHN GEORGE		
	DIEFENBAKER.....	June 21, 1957	June 21, 1957
Secretary of State for External Affairs....	Hon. HOWARD CHARLES GREEN.....	June 21, 1957	June 4, 1959
Minister of Finance and Receiver General..	Hon. DONALD METHUEN FLEMING.....	June 21, 1957	June 21, 1957
Minister of Trade and Commerce.....	Hon. GEORGE HEES.....	June 21, 1957	Oct. 11, 1960
Minister of Transport.....	Hon. LÉON BALCER.....	June 21, 1957	Oct. 11, 1960
Minister of Veterans Affairs.....	Hon. GORDON CHURCHILL.....	June 21, 1957	Oct. 11, 1960
Minister of Justice and Attorney General...	Hon. EDMUND DAVIE FULTON.....	June 21, 1957	June 21, 1957
Minister of National Revenue.....	Hon. GEORGE CLYDE NOWLAN.....	June 21, 1957	June 21, 1957
Minister of National Defence.....	Hon. DOUGLAS SCOTT HARKNESS.....	June 21, 1957	Oct. 11, 1960
Minister of Citizenship and Immigration...	Hon. ELLEN LOUKS FAIRCLOUGH.....	June 21, 1957	May 12, 1958
Minister of Fisheries.....	Hon. J. ANGUS MACLEAN.....	June 21, 1957	June 21, 1957
Minister of Labour.....	Hon. MICHAEL STARR.....	June 21, 1957	June 21, 1957
Postmaster General.....	Hon. WILLIAM MCLEAN HAMILTON.....	June 21, 1957	June 21, 1957
Solicitor General.....	Hon. WILLIAM J. BROWNE.....	June 21, 1957	Oct. 11, 1960
Minister of National Health and Welfare...	Hon. JAY WALDO MONTEITH.....	Aug. 22, 1957	Aug. 22, 1957
Minister of Agriculture.....	Hon. FRANCIS ALVIN GEORGE HAMILTON.....	Aug. 22, 1957	Oct. 11, 1960
Minister of Defence Production.....	Hon. RAYMOND JOSEPH MICHAEL O'HURLEY.....	May 12, 1958	May 12, 1958
Minister of Public Works.....	Hon. DAVID JAMES WALKER.....	Aug. 20, 1959	Aug. 20, 1959
Associate Minister of National Defence....	Hon. JOSEPH PIERRE ALBERT SÉVIGNY.....	Aug. 20, 1959	Aug. 20, 1959
Minister of Forestry.....	Hon. HUGH JOHN FLEMMING.....	Oct. 11, 1960	Oct. 11, 1960
Secretary of State.....	Hon. NOEL DORION.....	Oct. 11, 1960	Oct. 11, 1960
President of the Privy Council.....	Hon. NOEL DORION.....	Oct. 11, 1960	Dec. 28, 1961
Minister of Northern Affairs and National Resources.....	Hon. WALTER DINSDALE.....	Oct. 11, 1960	Oct. 11, 1960
Minister without Portfolio.....	Hon. GEORGE ERNEST HALPENNY.....	Oct. 11, 1960	Oct. 11, 1960
Minister of Mines and Technical Surveys...	Hon. JACQUES FLYNN.....	Dec. 28, 1961	Dec. 28, 1961

¹ Any changes occurring between Jan. 31, 1962 and the date of going to press will be carried in an Appendix to this volume.

Parliamentary Secretaries.—As provided by the Parliamentary Act (SC 1959, c. 15), assented to June 4, 1959, 15 Parliamentary Secretaries were appointed (one on Aug. 20, 1959 and 14 on Nov. 18, 1959) from among the Members of the House of Commons to hold office for 12 months and to assist the respective Ministers in such manner as each Minister may direct. In so doing, the Government revived the system of parliamentary assistantships in practice during the war and postwar years subsequent to 1943, whereby Cabinet Ministers might receive assistance in the performance of their parliamentary functions and promising Members of the House might secure a degree of apprenticeship for higher public office. A second Parliamentary Secretary to the Minister of Agriculture was appointed on Oct. 11, 1960, raising the number to 16, and the appointments were extended for one year on Nov. 18, 1960. On Jan. 18, 1962, the following Parliamentary Secretaries were appointed for a 12-month period:—

Secretary	Minister
RICHARD A. BELL.....	Finance
THOMAS M. BELL.....	Justice
L. E. CARDIFF.....	National Health and Welfare
EGAN CHAMBERS.....	National Defence
JOHN A. CHARLTON.....	Agriculture
ROLAND L. ENGLISH.....	Fisheries
HARRY JONES.....	Veterans Affairs
WARNER J. JORGENSEN.....	Agriculture
MARCEL LAMBERT.....	National Revenue
Q. MARTIN.....	Transport
EDMUND L. MORRIS.....	Trade and Commerce
JOHN C. PALLETT.....	Prime Minister
T. RICARD.....	Prime Minister
YVON-ROMA TASSÉ.....	Public Works
RICHARD D. THRASHER.....	Labour

The Privy Council.—The Queen's Privy Council for Canada is composed of around ninety members who are sworn of the Council by the Governor General on the advice of the Prime Minister and who retain membership for life. The Council consists chiefly of present and former Ministers of the Crown. It seldom meets as a body and its constitutional responsibilities as adviser to the Crown in respect to Canada are performed exclusively by a committee thereof consisting of the Ministers who constitute the Cabinet of the day and are also members of the Queen's Privy Council for Canada.

5.—Members of the Queen's Privy Council for Canada According to Seniority Therein' as at Jan. 31, 1962

President of the Privy Council.....	Hon. NOËL DORION
Clerk of the Privy Council and Secretary to the Cabinet.....	R. B. BRYCE
Assistant Clerk of the Privy Council.....	A. M. HILL

NOTE.—In this list the prefix "Rt. Hon." indicates membership in the British Privy Council.

Member ¹	Date When Sworn In	Member ¹	Date When Sworn In
Hon. ESIOFF LÉON PATENAUDE.....	Oct. 6, 1915	Hon. JOHN WHITNEY PICKERSGILL....	June 12, 1953
Hon. THOMAS ALEXANDER CRRERAR....	Oct. 12, 1917	Rt. Hon. THIBAudeau RINFRET.....	Sept. 16, 1953
Hon. HENRY HERBERT STEVENS.....	Sept. 21, 1921	Hon. JEAN LESAGE.....	Sept. 17, 1953
Hon. EDWARD JAMES McMURRAY.....	Nov. 14, 1923	Hon. PATRICK KERWIN.....	July 1, 1954
Rt. Hon. CHARLES VINCENT MASSEY....	Sept. 16, 1925	Hon. GEORGE CARLYLE MARLER.....	July 1, 1954
H.R.H. The DUKE OF WINDSOR.....	Aug. 2, 1927	Hon. ROCH PINARD.....	July 1, 1954
Hon. ARTHUR CHARLES HARDY.....	July 31, 1930	Hon. HERBERT J. SYMINGTON.....	Nov. 26, 1956
Hon. DONALD MATHESON SUTHERLAND....	Aug. 7, 1930	Hon. LOUIS RENÉ BEAUDOIN.....	Apr. 15, 1957
Hon. THOMAS GEROW MURPHY.....	Aug. 7, 1930	Hon. PAUL THEODORE HELLER.....	Apr. 26, 1957
Hon. WILLIAM EARL ROWE.....	Aug. 30, 1935	Rt. Hon. JOHN GEORGE DIEFFENBAKER ² ..	June 21, 1957
Hon. CHARLES GAVAN POWER.....	Oct. 23, 1935	Hon. HOWARD CHARLES GREEN ³	June 21, 1957
Rt. Hon. JAMES LORMIER ISLEY.....	Oct. 23, 1935	Hon. DONALD METHUEN FLEMING ³	June 21, 1957
Hon. JOSEPH ENOIL MICHAUD.....	Oct. 23, 1935	Hon. ALFRED JOHNSON BROOKS.....	June 21, 1957
Hon. COLIN WILLIAM GEORGE GIBSON....	July 8, 1940	Hon. GEORGE HEES ³	June 21, 1957
Hon. JOSEPH THORARINN THORSON.....	June 11, 1941	Hon. LÉON BALCER ³	June 21, 1957
Hon. WILLIAM FERDINAND ALPHONSE TURGEON.....	Oct. 8, 1941	Hon. GEORGE RANDOLPH PEARKES.....	June 21, 1957
Rt. Hon. LOUIS STEPHEN ST. LAURENT..	Dec. 10, 1941	Hon. GORDON CHURCHILL ³	June 21, 1957
Rt. Hon. SIR WINSTON LEONARD SPENCER CHURCHILL.....	Dec. 29, 1941	Hon. EDMUND DAVIE FULTON ³	June 21, 1957
Hon. ANDREW GEORGE LATTA McNAUGHTON.....	Nov. 2, 1944	Hon. GEORGE CLYDE NOWLAN ³	June 21, 1957
Hon. JOSEPH ARTHUR JEAN.....	Apr. 18, 1945	Hon. DOUGLAS SCOTT HARKNESS ³	June 21, 1957
Hon. LIONEL CHEVRIER.....	Apr. 18, 1945	Hon. ELLEN LOUKS FAIRCLOUGH ³	June 21, 1957
Hon. PAUL JOSEPH JAMES MARTIN.....	Apr. 18, 1945	Hon. J. ANGUS McLEAN ³	June 21, 1957
Hon. DOUGLAS CHARLES ABBOTT.....	Apr. 18, 1945	Hon. MICHAEL STARR ³	June 21, 1957
Hon. THOMAS VIEN.....	July 19, 1945	Hon. WILLIAM McLEAN HAMILTON ³	June 21, 1957
Hon. WISHART McLEA ROBERTSON.....	Sept. 4, 1945	Hon. JAMES MacKERRAS MACDONNELL..	June 21, 1957
Hon. MILTON FOWLER GREGG.....	Sept. 2, 1947	Hon. WILLIAM J. BROWNE ³	June 21, 1957
Hon. ROBERT WELLINGTON MAYHEW.....	June 11, 1948	Hon. PAUL COMTOIS.....	Aug. 7, 1957
Hon. LESTER BOWLES PEARSON.....	Sept. 10, 1948	Hon. JAY WALDO MONTEITH ³	Aug. 22, 1957
Hon. STUART SINCLAIR GARSON.....	Nov. 15, 1948	Hon. FRANCIS ALVIN GEORGE HAMILTON ³	Aug. 22, 1957
Hon. ROBERT HENRY WINTERS.....	Nov. 15, 1948	Hon. JOHN THOMAS HAIG.....	Oct. 9, 1957
Hon. FREDERICK GORDON BRADLEY.....	Apr. 1, 1949	H.R.H. The PRINCE PHILIP, Duke of Edinburgh.....	Oct. 14, 1957
Hon. CHARLES JOST BUCHELL.....	Apr. 1, 1949	Hon. RAYMOND JOSEPH MICHAEL O'HURLEY ³	May 12, 1958
Hon. GASPARD FAUTEUX.....	May 16, 1949	Hon. HENRI COURTEMANCHE.....	May 12, 1958
Hon. HUGUES LAPOINTE.....	Aug. 25, 1949	Hon. DAVID JAMES WALKER ³	Aug. 20, 1959
Hon. GABRIEL EDOUARD RINFRET.....	Aug. 25, 1949	Hon. JOSEPH PIERRE ALBERT SÉVIGNY ³ ..	Aug. 20, 1959
Hon. WALTER EDWARD HARRIS.....	Jan. 18, 1950	Hon. HUGH JOHN FLEMMING ³	Oct. 11, 1960
Hon. GEORGE PRUDHAM.....	Dec. 13, 1950	Hon. NOËL DORION ³	Oct. 11, 1960
Hon. GEORGE BLACK.....	Aug. 3, 1951	Hon. WALTER DINSDALE ³	Oct. 11, 1960
EARL ALEXANDER OF TUNIS.....	Jan. 29, 1952	Hon. GEORGE ERNEST HALPENNY ³	Oct. 11, 1960
Hon. JAMES SINCLAIR.....	Oct. 15, 1952	Hon. ROBERT HENRY MCGREGOR.....	Dec. 21, 1960
Hon. RALPH OSBORNE CAMPNEY.....	Oct. 15, 1952	Hon. WALTER MORLEY ASELTINE.....	Dec. 28, 1961
Hon. WILLIAM ROSS MACDONALD.....	May 12, 1953	Hon. LESLIE MISCAMPBELL FROST.....	Dec. 28, 1961
Hon. GEORGE ALEXANDER DREW.....	May 12, 1953	Hon. JACQUES FLYNN ³	Dec. 28, 1961

¹ Members of Her Majesty's Privy Council for Canada take rank *inter se* according to the dates of their being sworn in. ² Ranks as the Prime Minister of Canada. ³ Ranks as a Member of the Cabinet.

6.—Duration and Sessions of Parliaments, 1945-62

NOTE.—Similar information for the 1st to the 12th Parliaments, covering the period from Confederation to 1917, is given in the 1940 Year Book, p. 46; that for the 13th to 17th Parliaments in the 1945 edition, p. 53; and for the 18th and 19th Parliaments in the 1957-58 edition, p. 46.

Order of Parliament	Session	Date of Opening	Date of Prorogation	Days of Session	Sitting Days of House of Commons	Date of Election, Writs Returnable, Dissolution, and Length of Parliament ^{1,2}
20th Parliament.....	1st	Sept. 6, 1945	Dec. 18, 1945	104	76	June 11, 1945 ³ Aug. 9, 1945 ⁴ Apr. 30, 1949 ⁵ 3 y., 8 m., 22 d.
	2nd	Mar. 14, 1946	Aug. 31, 1946	171	118	
	3rd	Jan. 20, 1947	July 17, 1947	169	115	
	4th	Dec. 5, 1947	June 30, 1948	209	119	
	5th	Jan. 26, 1949	Apr. 30, 1949	95	59	
21st Parliament.....	1st	Sept. 15, 1949	Dec. 10, 1949	87	64	June 27, 1949 ³ Aug. 25, 1949 ⁴ June 13, 1953 ⁵ 3 y., 9 m., 20 d.
	2nd	Feb. 16, 1950	June 30, 1950	135	90	
	3rd	Aug. 29, 1950	Jan. 29, 1951	154	17	
	4th	Jan. 30, 1951	Oct. 9, 1951	253	105	
	5th	Oct. 9, 1951	Dec. 29, 1951	82	56	
	6th	Feb. 28, 1952	Nov. 20, 1952	267	87	
	7th	Nov. 20, 1952	May 14, 1953	176	108	
22nd Parliament.....	1st	Nov. 12, 1953	June 26, 1954	227	139	Aug. 10, 1953 ³ Oct. 8, 1954 ⁴ Apr. 12, 1957 ⁵ 3 y., 6 m., 5 d.
	2nd	Jan. 7, 1955	July 28, 1955	203	140	
	3rd	Jan. 10, 1956	Aug. 14, 1956	218	152	
	4th	Nov. 26, 1956	Jan. 8, 1957	44 ⁶	5	
	5th	Jan. 8, 1957	Apr. 12, 1957	95	71	
23rd Parliament.....	1st	Oct. 14, 1957	Feb. 1, 1958	111	78	June 10, 1957 ³ Aug. 8, 1957 ⁴ Feb. 1, 1958 ⁵ 5 m., 25 d.
24th Parliament.....	1st	May 12, 1958	Sept. 6, 1958	117	93	Mar. 31, 1958 ³ Apr. 30, 1958 ⁴
	2nd	Jan. 15, 1959	July 18, 1959	185	127	
	3rd	Jan. 14, 1960	Aug. 10, 1960	210	146	
	4th	Nov. 17, 1960	Sept. 28, 1961	316 ⁷	174	
	5th	Jan. 18, 1962	...	...	...

¹ The ordinary legal limit of duration for each Parliament is five years.

² Duration of Parliament in

years, months and days. The life of a Parliament is counted from the date of return of election writs to the date of dissolution, both days inclusive (B.N.A. Act, Sect. 50).

³ Date of general election.

⁴ Writs returnable.

⁵ Dissolution of Parliament.

⁶ Includes long adjournment from Nov. 29, 1956 to Jan. 8, 1957.

⁷ Includes long adjournment from July 13 to Sept. 7, 1961.

Subsection 2.—The Legislature

The federal legislative authority is vested in the Parliament of Canada consisting of the Queen, an Upper House styled the Senate, and the House of Commons. Bills may originate in either the Senate or the House subject to the provisions of Sect. 53 of the British North America Act, 1867, which provides that Bills for the appropriation of any part of the public revenue or the imposition of any tax or impost shall originate in the House of Commons. Bills must pass both Houses and receive Royal Assent before becoming law. In practice most public Bills originate in the House of Commons, although there has been a marked increase recently in the introduction of public Bills in the Senate, at the instance of the Government, in order that Bills may be dealt with in the Senate while the Commons is engaged in other matters such as the debate on the Speech from the Throne. Private Bills usually originate in the Senate. The Senate may delay, amend or even refuse to pass Bills sent to it from the Commons, but differences are usually settled without serious conflict. (See Chap. XXVI for current legislation.)

Under Sect. 91 of the British North America Acts, 1867 to 1952, the legislative authority of the Parliament of Canada extends to the following matters: the amendment of the Constitution of Canada (subject to certain exceptions); the public debt and property; the regulation of trade and commerce; unemployment insurance; the raising of money by any mode or system of taxation; the borrowing of money on the public credit; postal service; the Census and statistics; militia, military and naval service, and defence; the fixing of and providing for the salaries and allowances of civil and other officers of the Government of Canada; beacons, buoys, lighthouses and Sable Island; navigation and shipping;

quarantine and the establishment and maintenance of marine hospitals; sea coast and inland fisheries; ferries between a province and any British or foreign country or between two provinces; currency and coinage, banking, incorporation of banks and the issue of paper money; savings banks; weights and measures; bills of exchange and promissory notes; interest; legal tender; bankruptcy and insolvency; patents of invention and discovery; copyrights; Indians and lands reserved for the Indians; naturalization and aliens; marriage and divorce; the criminal law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters; the establishment, maintenance and management of penitentiaries; such classes of subjects as are expressly excepted in the enumeration of the classes of subjects by these Acts assigned exclusively to the legislatures of the provinces.

Under Sect. 95, the Parliament of Canada may make laws in relation to agriculture and immigration concurrently with provincial legislatures although federal legislation is paramount in the event of conflict. By the British North America Act, 1951 (Br. Stat. 1950-51, c. 32) it is declared that the Parliament of Canada might make laws in relation to old age pensions in Canada but no such law shall affect the operation of any provincial laws in relation to old age pensions.

The Senate.—From an original membership of 72 at Confederation, the Senate, through the addition of new provinces and the general growth of population, now has 102 members, the latest change in representation having been made on the admission of Newfoundland to Confederation in 1949. The growth of representation in the Senate is traced in the 1940 Year Book, pp. 47-49, and is summarized by provinces in Table 7.

7.—Representation in the Senate since Confederation, 1867

Province	1867	1870	1871	1873	1882	1887	1892	1903	1905	1915-1948	1949-1962
Ontario.....	24	24	24	24	24	24	24	24	24	24	24
Quebec.....	24	24	24	24	24	24	24	24	24	24	24
Atlantic Provinces.....	24	24	24	24	24	24	24	24	24	24	30
Nova Scotia.....	12	12	12	10	10	10	10	10	10	10	10
New Brunswick.....	12	12	12	10	10	10	10	10	10	10	10
Prince Edward Island.....	...	...	...	4	4	4	4	4	4	4	4
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	6
Western Provinces.....	...	2	5	5	6	8	9	11	15	24	24
Manitoba.....	...	2	2	2	3	3	4	4	4	6	6
British Columbia.....	...	...	3	3	3	3	3	3	3	6	6
Saskatchewan.....	...	...	...	...	...	...	...	...	...	6	6
Alberta.....	...	...	...	...	...	2	2	4	4	6	6
Totals.....	72	74	77	77	78	80	81	83	87	96	102

Senators are appointed for life by the Governor General by instrument under the Great Seal of Canada on the recommendation of the Prime Minister. The actual power of appointing Senators resides by constitutional usage in the Prime Minister whose advice the Governor General accepts in this regard. In each of the four main divisions of Canada, except Quebec, Senators represent the whole of the province for which they are appointed: in Quebec one Senator is appointed for each of the 24 electoral divisions of what was formerly Lower Canada. The deliberations of the Senate are presided over by a Speaker appointed by the Governor General in Council (in effect by the Government) and government business in the Senate is sponsored by the Government Leader in the Senate.

The Senate is not a competitor of the House of Commons in the field of legislation but, in the main, acts as a second chamber giving further scrutiny to legislation initiated in the House of Commons. Under the Constitution, Bills for appropriating any part of the public revenue or for imposing a tax or impost must originate in the Commons but in every other respect, since both Houses must concur in every piece of legislation, the Senate has an equal voice with the House of Commons.

8.—Members of the Senate, by Province, as at Jan. 31, 1962¹

Speaker.....	HON. MARK ROBERT DROUIN
Leader of the Government.....	HON. WALTER MORLEY ASELTINE
Leader of the Opposition.....	HON. WILLIAM ROSS MACDONALD
Clerk of the Senate and Clerk of the Parliaments.....	JOHN FORBES MACNEILL

(Ranked according to seniority, by province. All Senators are entitled to the designation "Honourable".)

Province and Name of Senator	P.O. Address	Province and Name of Senator	P.O. Address
Newfoundland— (6 Senators)		Quebec—concluded	
BAIRD, ALEXANDER BOYD.....	St. John's	QUART, JOSIE A.....	Sillery
PRATT, CALBERT C.....	St. John's	BEAUBIEN, LOUIS P.....	Montreal
BASHA, MICHAEL G.....	Curling		
BRADLEY, FREDERICK GORDON.....	Bonavista	Ontario—	
HIGGINS, JOHN G.....	St. John's	(21 Senators—3 vacancies)	
HOLLETT, MALCOLM.....	St. John's	HARDY, ARTHUR CHARLES.....	Brockville
		WILSON, CATRINE REAY.....	Ottawa
Prince Edward Island—		LAMBERT, NORMAN PLATT.....	Ottawa
(4 Senators)		HAYDEN, SALTER ADRIAN.....	Toronto
GRANT, THOMAS VINCENT.....	Montague	PATTERSON, NORMAN MCLEOD.....	Fort William
BARBOUR, GEORGE H.....	Charlottetown	DAVIES, WILLIAM RUFERT.....	Toronto
INMAN, F. ELSIE.....	Montague	CAMPBELL, GORDON PETER.....	Toronto
MACDONALD, JOHN J.....	Charlottetown	TAYLOR, WILLIAM HORACE.....	Brantford
		BISHOP, CHARLES LAWRENCE.....	Ottawa
Nova Scotia—		ROEBUCK, ARTHUR WENTWORTH.....	Toronto
(9 Senators—1 vacancy)		FARQUHAR, THOMAS.....	Little Current
ROBERTSON, WISHART MCLEA.....	Truro	FRASER, WILLIAM ALEXANDER.....	Trenton
KINLEY, JOHN JAMES.....	Lunenburg	WOODROW, ALLAN L.....	Toronto
MC DONALD, JOHN ALEXANDER.....	Halifax	MACDONALD, WILLIAM ROSS.....	Brantford
COMEAU, JOSEPH WILLIE.....	Comeauville	CONNOLLY, JOHN J.....	Ottawa
ISNOR, GORDON B.....	Halifax	ROLL, DAVID A.....	Toronto
SMITH, DONALD.....	Liverpool	LEONARD, T. D'ARCY.....	Toronto
CONNOLLY, HAROLD.....	Halifax	WHITE, GEORGE STANLEY.....	Madoc
BLOIS, FREDERICK M.....	Truro	SULLIVAN, JOSEPH A.....	Toronto
MACDONALD, JOHN M.....	North Sydney	BRUNT, WILLIAM R.....	Hanover
		CHOQUETTE, LIONEL.....	Ottawa
New Brunswick—		Manitoba—	
(9 Senators—1 vacancy)		(5 Senators—1 vacancy)	
VENIOT, CLARENCE JOSEPH.....	Bathurst	BEAUBIEN, ARTHUR LUCIEN.....	St. Jean Baptiste
MCLEAN, ALEXANDER NEIL.....	Saint John	CRERAR, THOMAS ALEXANDER.....	Winnipeg
BURCHILL, GEORGE PERCIVAL.....	South Nelson	WALL, WILLIAM M.....	Winnipeg
FERGUSON, MURIEL MCQUEEN.....	Fredericton	THORVALDSON, GUNNAR S.....	Winnipeg
MCGRAND, FRED A.....	Fredericton Jct.	IRVINE, OLIVE L.....	Winnipeg
SAVOIE, CALIXTE F.....	Moncton		
TAYLOR, AUSTIN CLAUDE.....	Salisbury	Saskatchewan—	
EMERSON, CLARENCE V.....	Saint John	(6 Senators)	
BROOKS, ALFRED J.....	Sussex	HORNER, RALPH BYRON.....	Blaine Lake
		ASELTINE, WALTER MORLEY.....	Rosetown
Quebec—		WOOD, THOMAS H.....	Regina
(23 Senators—1 vacancy)		BOUCHER, WILLIAM ALBERT.....	Prince Albert
RAYMOND, DONAT.....	Montreal	PEARSON, ARTHUR M.....	Lumsden
HUGESSEN, ADRIAN KNATCHBULL.....	Montreal	HNATYSHYN, JOHN.....	Saskatoon
HOWARD, CHARLES BENJAMIN.....	Sherbrooke		
GOUIN, LÉON MERCIER.....	Montreal	Alberta—	
VIEU, THOMAS.....	Outremont	(6 Senators)	
BOUCHARD, TÉLÉSPHORE DAMIEN.....	St. Hyacinthe	BLAIS, ARISTIDE.....	Edmonton
VAILLANCOURT, CYRILLE.....	Lévis	GERSHAW, FRED WILLIAM.....	Medicine Hat
DUPUIS, VINCENT.....	Montreal	STAMBAUGH, J. WESLEY.....	Bruce
DESSUREAULT, JEAN MARIE.....	Quebec	CAMERON, DONALD.....	Edmonton
BOUFFARD, PAUL HENRI.....	Quebec	GLADSTONE, JAMES.....	Cardston
JODOIN, MARIANA BEAUCHAMP.....	Montreal	BUCHANAN, JOHN A.....	Edmonton
TREMBLAY, LEONARD D. SWEZEY.....	St. Malachie		
FOURNIER, SARTE.....	Montreal	British Columbia—	
MOLSON, H. de M.....	Montreal	(6 Senators)	
POWER, C. G.....	Quebec	FARRIS, JOHN WALLACE DE BEQUE.....	Vancouver
POULIOT, JEAN FRANÇOIS.....	Rivière du Loup	TURGEON, JAMES GRAY.....	Vancouver
BOIS, HENRI CHARLES.....	St. Bruno	MC KEEN, STANLEY STEWART.....	Vancouver
LEFRANÇOIS, J. EUGÈNE.....	Montreal	REID, THOMAS.....	New Westminster
DROUIN, MARK ROBERT.....	Quebec	HODGES, NANCY.....	Victoria
METHOT, LÉON.....	Trois Rivières	SMITH, SIDNEY JOHN.....	Kamloops
MONETTE, GUSTAVE.....	Montreal		

¹ Any changes occurring between Jan. 31, 1962 and the date of going to press will be carried in an Appendix to this volume.

The House of Commons.—The British North America Act, 1867 provided that in respect of representation in the House of Commons the Province of Quebec should have the fixed number of sixty-five members and that there should be assigned to each of the other provinces such a number of members as would bear the same proportion to the number of its population as the number sixty-five bears to the number of the population of Quebec. This Act also provided that on the completion of a census in 1871 and of each subsequent decennial census the representation of the several provinces should be readjusted from time to time provided the proportionate representation of the provinces as prescribed by the Act were not thereby disturbed.

In the session of 1946 the House of Commons adopted a resolution stating that the effect of the provisions of the British North America Act relating to representation had not been satisfactory in that proportionate representation of the provinces according to population had not been maintained and that a more equitable apportionment of members to the various provinces could be effected if readjustments were made on the basis of the population of all the provinces taken as a whole. The Act was amended accordingly in 1946 to provide a new rule to regulate representation in the House of Commons. Generally speaking, representation was fixed as follows:—

The membership assigned to each province shall be computed by dividing the total population of the provinces by two hundred and fifty-four and by dividing the population of each province by the quotient so obtained.

This rule, employed in the redistribution of representation made in 1947, was effective in the General Election of 1949.

After the completion of the 1951 Census it was apparent that as a result of a wartime shift of population a substantial reduction in the representation of the Province of Saskatchewan would ensue under the rules then regulating representation. Accordingly, in an effort to eliminate sharp reductions in provincial representation from one census to another, the British North America Act was again amended to provide representation on the following basis:—

“Sect. 51.—(1) Subject as hereinafter provided, the number of members of the House of Commons shall be two hundred and sixty-three and the representation of the provinces therein shall forthwith upon the coming into force of this section and thereafter on the completion of each decennial census be readjusted by such authority, in such manner, and from such time as the Parliament of Canada from time to time provides, subject and according to the following rules:—

“1. There shall be assigned to each of the provinces a number of members computed by dividing the total population of the provinces by two hundred and sixty-one and by dividing the population of each province by the quotient so obtained, disregarding, except as hereinafter in this section provided, the remainder, if any, after the said process of division.

“2. If the total number of members assigned to all the provinces pursuant to rule one is less than two hundred and sixty-one, additional members shall be assigned to the provinces (one to a province) having remainders in the computation under rule one commencing with the province having the largest remainder and continuing with the other provinces in the order of the magnitude of their respective remainders until the total number of members assigned is two hundred and sixty-one.

“3. Notwithstanding anything in this section, if upon completion of a computation under rules one and two, the number of members to be assigned to a province is less than the number of senators representing the said province, rules one and two shall cease to apply in respect of the said province, and there shall be assigned to the said province a number of members equal to the said number of senators.

“4. In the event that rules one and two cease to apply in respect of a province then, for the purpose of computing the number of members to be assigned to the provinces in respect of which rules one and two continue to apply, the total population of the provinces shall be reduced by the number of the population of the province in respect of which rules one and two have ceased to apply and the number two hundred and sixty-one shall be reduced by the number of members assigned to such province pursuant to rule three.

“5. On any such readjustment the number of members for any province shall not be reduced by more than fifteen per cent below the representation to which such province was entitled under rules one to four of this subsection at the last preceding readjustment of the representation of that province, and there shall be no reduction in the representation of any province as a result of which that province would have a smaller number of members

than any other province that according to the results of the then last decennial census did not have a larger population; but for the purposes of any subsequent readjustment of representation under this section any increase in the number of members of the House of Commons resulting from the application of this rule shall not be included in the divisor mentioned in rules one to four of this subsection.

"6. Such readjustment shall not take effect until the termination of the then existing Parliament.

"(2) The Yukon Territory as constituted by chapter forty-one of the Statutes of Canada, 1901, shall be entitled to one member, and such other part of Canada not comprised within a province as may from time to time be defined by the Parliament of Canada shall be entitled to one member." (RSC 1952, c. 304.)

The principal effect of these latest rules is that the representation of any province shall not be reduced by more than 15 p.c. at any one readjustment, subject however to the qualification that the rule shall not work out in such manner that the representation of a province with a smaller population shall be greater than any province with a larger population.

Subsequently, Parliament enacted a measure, "An Act to readjust the Representation in the House of Commons, 1952", effective in the General Election of 1953, which provided that representation in the House of Commons shall be on the following basis:—

"Sect. 2.—Eighty-five members of the House of Commons shall be elected for the Province of Ontario, seventy-five for the Province of Quebec, twelve for the Province of Nova Scotia, ten for the Province of New Brunswick, fourteen for the Province of Manitoba, twenty-two for the Province of British Columbia, four for the Province of Prince Edward Island, seventeen for the Province of Saskatchewan, seventeen for the Province of Alberta, seven for the Province of Newfoundland, one for the Yukon Territory and one for Mackenzie district of the Northwest Territories, thus making a total of two hundred and sixty-five members." (RSC 1952, c. 334.)

The number of representatives of each province elected at each of the 24 General Elections since Confederation is given in Table 9.

9.—Representation in the House of Commons, as at Federal General Elections 1867-1958

Province or Territory	1867	1872	1874 1878	1882	1887 1891	1896 1900	1904	1908 1911	1917 1921	1925 1926 1930	1935 1940 1945	1949	1953 1957 1958
Ontario.....	82	88	88	92	92	92	86	86	82	82	82	83	85
Quebec.....	65	65	65	65	65	65	65	65	65	65	65	73	75
Nova Scotia.....	19	21	21	21	21	20	18	18	16	14	12	13	12
New Brunswick.....	15	16	16	16	16	14	13	13	11	11	10	10	10
Manitoba.....	...	4	4	5	5	7	10	10	15	17	17	16	14
British Columbia.....	...	6	6	6	6	6	7	7	13	14	16	18	22
Prince Edward Island....	...	...	6	6	6	5	4	4	4	4	4	4	4
Saskatchewan.....	...	...	...	...	4	4	10	10	16	21	21	20	17
Alberta.....	...	...	...	...	...	...	7	7	12	16	17	17	17
Yukon.....	...	...	...	...	...	...	1	1	1	1	1	1	1
Mackenzie River, N.W.T.	...	...	...	...	...	...	...	...	...	...	...	7	1
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	...	...	7
Totals.....	181	200	206	211	215	213	214	221	235	245	245	262	265

Under their parliamentary system of representation, based on a "constitution similar in principle to that of the United Kingdom", the people of Canada elect representatives having various political party affiliations as shown in Table 10. In a general election, the Canadian electorate not only determines what political party leader shall be called on to form the Government of the day, but it also decides which of the parties is to become the Official Opposition. Her Majesty's Loyal Opposition occupies an essential place in constitutions based on the British parliamentary system, in that its function is to oppose or criticize in debate the Government in power—an essential to good government at all times. The Official Opposition is founded, like such institutions as the Cabinet and the Prime Ministership, on unwritten custom that has become firmly established. Although the position of Leader of the Opposition is not recognized in the British North America

Act, it received statutory acknowledgment in the Canadian Parliament in 1905 when the Senate and House of Commons Act (SC 1905, c. 43, Sect. 2) provided an additional sessional allowance to "the member occupying the recognized position of Leader of the Opposition in the House of Commons".

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962.

Speaker.....	HON. ROLAND MICHENER
Prime Minister.....	RT. HON. JOHN GEORGE Diefenbaker
Leader of the Opposition.....	HON. LESTER B. PEARSON
Clerk of the House of Commons.....	LÉON J. RAYMOND

NOTE.—The vote is summarized by province in Table 12, p. 71. The leaders of the political parties are indicated by asterisks (*). This information, except the population of constituencies, has been supplied by the Chief Electoral Officer. Party affiliations are unofficial. P.C. = Progressive Conservative; Lib. = Liberal; C.C.F. = Co-operative Commonwealth Federation; L.-Lab. = Liberal-Labour.

Province and Electoral District	Popu- lation, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Mem- ber	Name of Member	P.O. Address	Party Affili- ation
	No.	No.	No.	No.			
Newfoundland—							
(7 members)							
Bonavista-Twillingate..	48,354	24,349	18,117	13,670	Hon. J. W. PICKERSGILL	Ottawa, Ont.....	Lib.
Burin-Burgeo.....	46,362	21,624	16,318	11,360	C. W. CARTER.....	St. John's.....	Lib.
Grand Falls-White Bay- Labrador.....	71,416	35,034	26,649	16,328	C. R. GRANGER.....	St. John's.....	Lib.
Humber-St. George's..	64,683	29,101	23,924	13,468	H. M. BATTEN.....	Corner Brook.....	Lib.
St. John's East.....	66,132	33,998	27,585	17,894	J. A. McGRATH.....	St. John's.....	P.C.
St. John's West.....	62,921	32,947	26,706	15,953	Hon. W. J. BROWNE	St. John's.....	P.C.
Trinity-Conception....	55,206	27,725	21,629	12,599	J. R. TUCKER.....	St. John's.....	Lib.
Prince Edward Island—							
(4 members)							
Kings.....	17,853	9,956	8,965	5,018	J. A. MACDONALD ¹	Cardigan.....	P.C.
Prince.....	38,007	19,314	17,383	10,444	O. H. PHILLIPS.....	Alberton.....	P.C.
Queens.....	43,425	24,930	42,954	13,969	Hon. J. A. MACLEAN.....	Beaton's Mills....	P.C.
				13,480	H. MACQUARRIE.....	Victoria.....	P.C.
Nova Scotia—							
(12 members)							
Antigonish.....							
Guysborough.....	26,878	14,757	12,662	6,758	C. O'LEARY.....	Antigonish.....	P.C.
Cape Breton North and Victoria.....	46,874	24,283	20,841	12,046	R. MUIR.....	Sydney Mines....	P.C.
Cape Breton South..	83,152	43,879	38,740	17,636	D. MACINNIS.....	Glace Bay.....	P.C.
Colchester-Hants....	59,529	33,298	28,831	15,653	C. F. KENNEDY.....	Truro.....	P.C.
Cumberland.....	39,598	22,688	19,017	11,379	R. C. COATES.....	Amherst.....	P.C.
Digby-Annapolis-Kings	71,076	39,163	33,621	19,432	Hon. G. C. NOWLAN	Wolfville.....	P.C.
Halifax.....	197,943	112,253	179,287	53,693	R. McCLEAVE.....	Halifax.....	P.C.
				53,255	E. MORRIS.....	Halifax.....	P.C.
Inverness-Richmond..	32,823	19,064	15,518	7,725	R. S. MACLELLAN.....	Portage, Cape Breton.....	P.C.
Pictou.....	44,566	25,638	22,649	13,618	R. MACEWAN.....	New Glasgow.....	P.C.
Queens-Lunenburg....	46,981	29,355	24,905	14,156	L. R. CROUSE.....	Lunenburg.....	P.C.
Shelburne-Yarmouth- Clare.....	45,287	25,818	22,408	12,071	F. F. LEGERE.....	Pinkney's Point...	P.C.
New Brunswick—							
(10 members)							
Charlotte.....	24,497	13,965	12,379	6,448	R. D. C. STEWART.....	St. George.....	P.C.
Gloucester.....	64,119	28,326	25,025	13,112	H. J. ROBICHAUD.....	Caraquet.....	Lib.
Kent.....	27,492	12,949	11,236	6,118	H. J. MICHAUD.....	Buctouche.....	Lib.
Northumberland.....							
Miramichi.....	47,223	22,862	19,665	10,206	G. R. McWILLIAM.....	Newcastle.....	Lib.
Restigouche.....							
Madawaska.....	76,708	35,342	30,956	17,221	J. C. VAN HORNE ²	Campbellton.....	P.C.
Royal.....	37,105	21,126	17,673	10,483	Hon. A. J. BROOKS ³	Sussex.....	P.C.

¹ Died Jan. 4, 1961; see Table 11 for by-election.

² Resigned Jan. 16, 1961; see Table 11 for by-election.

³ Resigned Sept. 12, 1960; appointed to the Senate Sept. 12, 1960; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962—continued.

Province and Electoral District	Population, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
New Brunswick—concl.							
Saint John-Albert.....	92,335	54,781	42,782	27,049	T. M. BELL.....	Saint John.....	P.C.
Victoria-Carleton.....	42,093	22,083	17,961	10,692	G. W. MONTGOMERY.....	Woodstock.....	P.C.
Westmorland.....	85,414	48,565	42,107	20,149	W. L. M. CREAGHAN.....	Moncton.....	P.C.
York-Sunbury.....	57,630	34,388	29,922	15,943	J. C. MACRAE.....	Fredericton.....	P.C.
Quebec—							
(75 members)							
Argenteuil - Deux -							
Montagnes.....	55,069	30,486	25,889	14,483	J. O. LATOUR.....	St. Benoit.....	P.C.
Beauce.....	59,290	28,585	24,773	10,417	J.-P. RACINE.....	St. Honoré de Shenley.....	Lib.
Beauharnois-Salaberry.....	53,811	31,939	25,883	13,202	G. BRUCHÉSI.....	Ville de Léry.....	P.C.
Bellevue.....	32,546	15,842	13,204	6,861	N. DORION.....	Ste. Foy.....	P.C.
Berthier-Maskinongé.....	47,423	24,879	21,653	12,702	R. PAUL.....	Louiseville.....	P.C.
Delanauère.....	43,240	19,514	16,992	9,135	L. GRENIER.....	New Carlisle.....	P.C.
Brome-Missisquoi.....	40,563	22,434	18,575	11,361	H. GRAFFEY.....	Knowlton.....	P.C.
Chambly-Rouville.....	45,350	25,300	21,362	10,546	M. JOHNSON.....	Beloeil.....	P.C.
Champlain.....	53,321	30,525	27,156	13,537	P. LAHAYE.....	Batiscan.....	P.C.
Chapleau.....	65,456	32,006	24,896	14,705	J. J. MARTEL.....	Amos.....	P.C.
Charlevoix.....	47,430	23,479	20,447	12,315	M. ASSELIN.....	La Malbaie.....	P.C.
Châteauguay-Hunting- don-Laprairie.....	52,413	28,040	22,033	12,365	M. E. BARRINGTON.....	Ormatown.....	P.C.
Chicoutimi.....	70,668	34,437	30,659	15,407	V. BRASSARD.....	Chicoutimi.....	P.C.
Compton-Frontenac.....	44,048	20,844	18,171	9,383	G. M. STEARNS.....	Lac Mégantic.....	P.C.
Dorchester.....	38,737	18,375	16,014	8,766	N. DROUIN.....	St. Maxime de Scott.....	P.C.
Drummond-							
Arthabaska.....	83,407	41,685	35,316	17,288	S. BOULANGER.....	Victoriaville.....	Lib.
Caspé.....	63,941	28,994	24,978	14,535	R. L. ENGLISH.....	Rivière au Renard.....	P.C.
Catineau.....	48,721	25,625	20,935	10,840	R. LEDUC.....	Maniwaki.....	Lib.
Hull.....	76,231	41,923	36,238	20,132	A. CARON.....	Hull.....	Lib.
Iles-de-la-Madeleine.....	11,556	5,191	4,755	2,471	J.-R. KEAYS.....	Gaspé.....	P.C.
Joliette-L'Assomption- Montcalm.....	87,101	46,600	37,561	21,821	L.-J. PIGEON.....	Joliette.....	P.C.
Kamouraska.....	35,907	18,038	14,683	7,691	C. RICHARD.....	Ste. Anne de la Pocatière.....	P.C.
Labelle.....	43,705	21,609	18,440	10,606	Hon. H. COURTEMANCHE ¹	Mont Laurier.....	P.C.
Lac-Saint-Jean.....	42,918	19,931	17,813	8,255	R. PARIZEAU.....	Alma.....	P.C.
Lapointe.....	68,106	33,701	29,222	12,113	A. BRASSARD.....	Jonquière.....	Lib.
Lévis.....	44,284	25,135	21,806	12,410	M. BOURGET.....	Lévis.....	Lib.
Longueuil.....	85,540	48,560	37,829	18,637	Hon. J. P. A. SÉVIGNY.....	Westmount.....	P.C.
Lotbinière.....	38,625	18,521	16,182	9,610	Hon. R. O'HURLEY.....	St. Gilles.....	P.C.
Matapédia-Matane.....	67,441	29,752	25,581	14,969	A. BEZLE.....	St. Léon le Grand.....	P.C.
Mégantic.....	64,958	31,569	26,942	13,486	G. ROBERGE.....	Thetford Mines.....	Lib.
Montmagny-L'Islet.....	39,840	20,173	16,777	8,689	Hon. J. LESAGE ²	Quebec.....	Lib.
Nicolet-Yamaska.....	45,880	23,515	19,231	11,880	Hon. P. COMTOIS ³	Pierreville.....	P.C.
Pontiac-Témiscamingue.....	42,432	20,628	17,423	8,842	P. MARTINEAU.....	Campbell's Bay.....	P.C.
Portneuf.....	46,976	25,580	21,627	11,386	A. ROMPRÉ.....	St. Urbain.....	P.C.
Québec East.....	87,323	52,622	45,397	22,285	Y.-R. TASSÉ.....	Sillery.....	P.C.
Québec South.....	54,949	37,616	31,683	15,771	J. FLYNN.....	Quebec.....	P.C.
Québec West.....	55,413	32,338	27,924	14,223	J. E. BISSONNETTE.....	St. Vallier Ouest.....	P.C.
Québec-Montmorency.....	98,331	53,501	46,471	25,394	R. LAPRÉNIÈRE.....	Ste. Foy.....	Lib.
Richelieu-Verchères.....	53,063	29,394	24,738	13,497	L.-J.-L. CARDIN.....	Ste. Anne de Sorel.....	P.C.
Richmond-Wolfe.....	57,963	29,305	23,990	11,984	V.-F. DUBOIS.....	Asbestos.....	P.C.
Rimouski.....	70,682	33,759	28,657	16,426	E. MORISSETTE.....	Mont Joli.....	P.C.
Roberval.....	52,380	23,342	19,984	10,696	J. N. TREMBLAY.....	St. André.....	P.C.
Saint-Hyacinthe-Bagot.....	58,517	32,557	26,947	15,761	T. RICARD.....	St. Hyacinthe.....	P.C.
Saint-Jean-Iberville- Napierville.....	57,871	30,739	26,826	14,332	Y. DUPUIS.....	St. Jean.....	Lib.
Saint-Maurice-Lafleche.....	79,451	43,873	35,059	18,556	J.-A. RICHARD.....	Shawinigan.....	Lib.

¹ Resigned Jan. 9, 1960; appointed to the Senate Jan. 20, 1960; see Table 11 for by-election.
June 11, 1958 to assume leadership of the Liberal Party in Quebec; see Table 11 for by-election.
Lieutenant-Governor of Quebec Oct. 6, 1961; results of by-election in Appendix.

² Resigned

³ Appointed

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962—continued.

Province and Electoral District	Population, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
Quebec—concluded							
Saguenay.....	56,655	32,282	24,820	13,194	P. LARUE.....	Baie Comeau.....	P.C.
Shefford.....	60,388	31,755	26,215	13,001	M. BOIVIN.....	Granby.....	Lib.
Sherbrooke.....	64,463	36,975	30,362	15,383	M. ALLARD.....	Sherbrooke.....	P.C.
Stanstead.....	41,348	22,454	18,659	10,363	R. LÉTOURNEAU.....	Stanstead Plain.....	P.C.
Témiscouata.....	58,424	26,927	23,379	13,361	A. FRÉCHETTE.....	Cabano.....	P.C.
Terrebonne.....	81,895	46,746	37,953	19,319	M. DESCHAMBAULT.....	St. Jérôme.....	P.C.
Trois-Rivières.....	62,932	36,338	30,505	18,049	Hon. L. BALCAR.....	Trois-Rivières.....	P.C.
Vaudreuil-Soulanges.....	32,361	18,420	15,558	8,161	M. BOURBONNAIS.....	Terrasse Vaudreuil.....	P.C.
Villeneuve.....	74,366	34,517	29,067	10,102	A. DUMAS.....	Malartic.....	Lib.
Montreal and Jesus Islands—							
Cartier.....	48,952	25,907	16,713	7,097	L. D. CRESTOHL.....	Montreal.....	Lib.
Dollard.....	84,052	51,102	38,820	18,760	G. ROULEAU.....	Montreal.....	Lib.
Hochelaga.....	75,004	46,363	32,101	16,706	R. EUDES.....	Montreal.....	Lib.
Jacques-Cartier.....							
Lasalle.....	110,931	70,995	58,922	30,908	J. PRATT.....	Dorval.....	P.C.
Lafontaine.....	50,584	33,355	23,991	12,195	J. G. RATELLE.....	Montreal.....	Lib.
Laurier.....	47,055	29,400	20,046	10,125	Hon. L. CHEVRIER.....	Font Viau.....	Lib.
Laval.....	117,525	73,692	55,581	26,076	R. BOURDAGES.....	Laval des Rapides.....	P.C.
Maisonneuve.....							
Rosemont.....	94,124	62,259	43,720	21,515	J. P. DESCHATELETS.....	Montreal.....	Lib.
Mercier.....	124,913	76,119	53,256	26,463	A. GILLET.....	Cité de St. Michel.....	P.C.
Mount Royal.....	106,636	66,494	46,113	22,051	A. A. MACNAUGHTON.....	Montreal.....	Lib.
Notre-Dame-de-Grâce.....	93,983	59,476	45,260	27,145	Hon. W. M. HAMILTON.....	Montreal.....	P.C.
Outremont-Saint-Jean.....	58,446	34,924	23,220	12,715	R. BOURQUE.....	Outremont.....	Lib.
Papineau.....	81,066	50,872	35,387	18,466	A. MEUNIER.....	Montreal.....	Lib.
St. Ann.....	40,783	22,689	16,143	8,289	G. LOISELLE.....	Montreal.....	Lib.
Saint-Antoine.....							
Westmount.....	61,800	41,379	30,028	15,882	R. WEBSTER.....	Westmount.....	P.C.
Saint-Denis.....	65,286	40,538	29,080	14,737	A. DENIS.....	Montreal.....	Lib.
Saint-Henri.....	68,959	40,643	29,946	11,523	H.-PIT LESSARD.....	Montreal.....	Lib.
Saint-Jacques.....	63,653	40,856	25,021	12,798	C.-E. CAMPEAU.....	Montreal.....	P.C.
St. Lawrence.....							
St. George.....	44,510	27,503	17,901	9,702	E. CHAMBERS.....	Westmount.....	P.C.
Sainte-Marie.....	60,539	35,657	22,770	11,635	C. J. VALADE.....	Montreal.....	P.C.
Verdun.....	78,262	47,584	35,940	16,357	H. E. MONTEITH.....	Verdun.....	P.C.
Ontario—							
(85 members)							
Algoma East.....	40,838	29,196	21,712	11,240	Hon. L. B. PEARSON*.....	Ottawa.....	Lib.
Algoma West.....	63,727	34,867	28,852	12,390	G. E. NIXON.....	Sault Ste. Marie.....	Lib.
Brantford.....	51,813	31,065	25,703	14,059	J. WRATTEN.....	Brantford.....	P.C.
Brant-Haldimand.....	52,246	29,002	23,546	15,182	J. A. CHARLTON.....	Paris.....	P.C.
Bruce.....	28,658	17,142	14,576	9,510	A. E. ROBINSON.....	Kincardine.....	P.C.
Carleton.....	92,590	57,412	48,929	32,741	R. A. BELL.....	Britannia Bay.....	P.C.
Cochrane.....	42,720	22,199	17,710	7,851	J. A. HABEL.....	Kapuskasing.....	Lib.
Dufferin-Simcoe.....	48,859	24,880	18,967	13,037	Hon. W. E. ROWE.....	Newton Robinson.....	P.C.
Durham.....	35,827	20,940	17,535	9,732	P. VIVIAN.....	Port Hope.....	P.C.
Elgin.....	59,114	32,954	25,340	17,146	J. A. MCBAIN.....	St. Thomas.....	P.C.
Essex East.....	93,859	52,464	43,588	18,074	Hon. P. MARTIN.....	Windsor.....	Lib.
Essex South.....	51,613	28,399	23,640	14,326	R. D. THRASHER.....	Amherstburg.....	P.C.
Essex West.....	99,948	55,688	42,173	18,927	N. L. SPENCER.....	Windsor.....	P.C.
Fort William.....	51,450	29,129	25,131	9,915	H. BADANAI.....	Fort William.....	Lib.
Glengarry-Prescott.....	44,984	24,345	20,400	10,385	O. F. VILLENEUVE.....	Maxville.....	P.C.
Grenville-Dundas.....	37,541	22,103	15,727	10,793	A. C. CASSELMAN ¹	Prescott.....	P.C.
Grey-Bruce.....	36,200	21,686	18,280	11,875	E. A. WINKLER.....	Hanover.....	P.C.
Grey North.....	38,183	23,217	19,633	12,240	P. V. NOBLE.....	Shallow Lake.....	P.C.
Halton.....	68,297	43,467	24,960	21,056	A. BEST.....	Georgetown.....	P.C.
Hamilton East.....	67,147	39,537	29,897	15,046	Q. MARTIN.....	Hamilton.....	P.C.
Hamilton South.....	97,438	58,689	45,777	24,453	R. M. T. McDONALD.....	Hamilton.....	P.C.
Hamilton West.....	72,232	42,259	31,094	19,863	Hon. ELLEN FAIRCLOUGH.....	Hamilton.....	P.C.
Hastings-Frontenac.....	46,950	27,096	20,257	13,983	L. M. S. E. SMITH ²	Ottawa.....	P.C.

¹ Died May 11, 1958; see Table 11 for by-election.

² Died Mar. 17, 1959; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962—continued.

Province and Electoral District	Population, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
Ontario—concluded							
Hastings South.....	62,804	34,830	29,381	17,849	L. GRILLS.....	Belleville.....	P.C.
Huron.....	46,426	25,311	21,881	14,108	E. CARDIFF.....	Brussels.....	P.C.
Kenora-Rainy River.....	67,356	33,138	27,493	11,966	W. M. BENDICKSON.....	Kenora.....	L.-Lab.
Kent.....	68,212	38,108	31,462	17,348	H. W. DANFORTH.....	Blenheim.....	P.C.
Kingston.....	65,680	38,701	33,025	16,989	B. ALLMARK.....	Kingston.....	P.C.
Lambton-Kent.....	41,220	23,583	18,735	12,835	E. J. CAMPBELL.....	Wallaceburg.....	P.C.
Lambton West.....	67,350	37,967	29,509	16,603	J. W. MURPHY.....	Camlachie.....	P.C.
Lanark.....	37,993	22,204	16,557	12,116	G. H. DOUCETT.....	Carleton Place.....	P.C.
Leeds.....	43,199	25,583	22,040	12,675	H. STANTON ¹	Seeley's Bay.....	P.C.
Lincoln.....	111,740	64,402	51,627	29,958	J. SMITH.....	St. Catharines.....	P.C.
London.....	74,865	40,777	36,399	24,276	G. E. HALPENNY.....	London.....	P.C.
Middlesex East.....	78,524	45,085	36,351	24,896	H. O. WHITE.....	Glanworth.....	P.C.
Middlesex West.....	37,508	21,786	18,033	11,974	W. H. A. THOMAS.....	Strathroy.....	P.C.
Niagara Falls.....	70,950	40,348	20,956	14,025	W. L. HOUCK ²	Niagara Falls.....	Lib.
Nickel Belt.....	60,098	29,774	25,363	11,866	O. J. GODIN.....	Sudbury.....	Lib.
Nipissing.....	58,255	31,977	26,940	15,046	J. R. GARLAND.....	North Bay.....	Lib.
Norfolk.....	46,122	25,250	19,970	12,369	J. E. KNOWLES.....	Langton.....	P.C.
Northumberland.....	38,205	22,897	19,708	12,517	B. THOMPSON.....	Brighton.....	P.C.
Ontario.....	99,039	53,844	46,611	26,887	Hon. M. STARR.....	Oshawa.....	P.C.
Ottawa East.....	52,473	33,272	28,259	17,161	J. T. RICHARD.....	Ottawa.....	Lib.
Ottawa West.....	68,255	44,767	37,913	19,098	G. McILRAITH.....	Ottawa.....	Lib.
Oxford.....	65,228	36,986	29,714	22,079	W. NESBITT.....	Woodstock.....	P.C.
Parry Sound-Muskoka.....	52,556	30,517	24,342	14,888	G. H. AIKEN.....	Gravenhurst.....	P.C.
Peel.....	83,108	49,934	38,846	23,379	J. PALETTE.....	Port Credit.....	P.C.
Perth.....	53,410	32,294	26,245	18,295	Hon. J. W. MONTEITH.....	Stratford.....	P.C.
Peterborough.....	59,729	36,216	28,818	19,032	G. K. FRASER ³	Lakefield.....	P.C.
Port Arthur.....	78,111	39,784	31,794	12,217	D. M. FISHER.....	Port Arthur.....	C.C.F.
Prince Edward-Lennox.....	35,666	20,342	15,361	10,783	C. A. MILLIGAN.....	Napanee.....	P.C.
Renfrew North.....	45,802	23,543	20,821	10,425	J. M. FORGIE.....	Pembroke.....	Lib.
Renfrew South.....	34,403	19,439	17,498	9,259	J. W. BASKIN.....	Renfrew.....	P.C.
Russell.....	88,306	50,514	43,280	21,575	J. O. GOUR ⁴	Casselman.....	Lib.
Simcoe East.....	54,006	29,164	24,153	15,149	P. B. RYNARD.....	Orillia.....	P.C.
Simcoe North.....	40,754	25,051	19,947	13,855	H. SMITH.....	Barrie.....	P.C.
Stormont.....	56,452	31,867	26,637	13,964	G. CAMPBELL.....	Cornwall.....	P.C.
Sudbury.....	67,868	37,631	31,970	16,216	R. MITCHELL.....	Sudbury.....	Lib.
Timiskaming.....	49,891	25,420	21,159	7,544	A. PETERS.....	New Liskeard.....	C.C.F.
Timmins.....	45,469	23,286	19,493	7,342	M. MARTIN.....	Timmins.....	C.C.F.
Victoria.....	45,661	28,660	22,580	16,080	C. W. HODGSON.....	Haliburton.....	P.C.
Waterloo North.....	95,256	57,292	45,278	24,526	O. W. M. VEICHEL.....	Elmira.....	P.C.
Waterloo South.....	53,518	32,330	26,135	15,624	W. ANDERSON ⁵	Galt.....	P.C.
Welland.....	78,656	44,365	36,420	15,365	W. H. McMILLAN.....	Thorold.....	Lib.
Wellington-Huron.....	31,712	18,493	15,666	10,574	M. HOWE.....	Arthur.....	P.C.
Wellington South.....	50,928	30,372	25,814	15,160	A. D. HALES.....	Guelph.....	P.C.
Wentworth.....	79,421	47,532	36,778	23,854	F. E. LENNARD.....	Dundas.....	P.C.
York Centre.....	127,591	80,081	58,628	30,764	F. C. STINSON.....	Willowdale.....	P.C.
York East.....	73,284	49,428	37,728	22,900	R. H. MCGREGOR.....	Toronto.....	P.C.
York-Humber.....	78,202	51,339	40,008	23,723	MARGARET AITKEN.....	Toronto.....	P.C.
York North.....	70,595	45,201	34,178	21,499	C. A. CATHERS.....	Newmarket.....	P.C.
York-Scarborough.....	167,310	112,628	89,439	57,396	F. MCGEE.....	Don Mills.....	P.C.
York South.....	105,979	65,785	47,229	22,980	W. G. BEECH.....	Toronto.....	P.C.
York West.....	110,050	72,484	57,544	34,208	J. B. HAMILTON.....	Etobicoke.....	P.C.
City of Toronto—							
Broadview.....	57,494	34,720	24,296	15,364	Hon. G. HEES.....	Toronto.....	P.C.
Danforth.....	84,617	54,839	41,534	24,139	R. H. SMALL.....	Toronto.....	P.C.
Davenport.....	62,430	32,641	25,307	12,117	M. D. MORTON.....	Toronto.....	P.C.
Eglinton.....	71,271	52,098	41,091	28,565	Hon. D. M. FLEMING.....	Toronto.....	P.C.
Greenwood.....	56,637	35,551	26,573	16,284	Hon. J. M. MACDONNELL.....	Toronto.....	P.C.
High Park.....	59,850	35,454	27,821	14,289	J. W. KUCHERPA.....	Toronto.....	P.C.
Parkdale.....	56,650	34,790	26,456	13,640	A. MALONEY.....	Toronto.....	P.C.
Rosedale.....	55,088	33,519	24,826	15,429	Hon. D. J. WALKER.....	Toronto.....	P.C.
St. Paul's.....	54,262	40,656	28,590	18,213	Hon. R. MICHENER.....	Toronto.....	P.C.
Spadina.....	85,490	43,310	29,893	14,616	C. E. REA.....	Toronto.....	P.C.
Trinity.....	63,801	31,385	22,915	10,203	E. R. LOCKYER ⁶	Toronto.....	P.C.

¹ Died Dec. 8, 1960; see Table 11 for by-election.

² Died May 26, 1960; see Table 11 for by-election.

³ Died June 6, 1961; results of by-election in Appendix.

⁴ Died May 25, 1960; see Table 11 for by-election.

⁵ Died Mar. 24, 1959; see Table 11 for by-election.

⁶ Died Oct. 5, 1958; see Table 11 for by-election.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962—continued.

Province and Electoral District	Population, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.				
Manitoba—							
(14 members)							
Brandon-Souris.....	62,365	36,921	30,152	22,185	W. G. DINSDALE.....	Brandon.....	P.C.
Churchill.....	48,999	22,356	17,994	11,506	R. SIMPSON.....	Flin Flon.....	P.C.
Dauphin.....	41,304	22,299	18,835	8,674	R. E. FORBES.....	Dauphin.....	P.C.
Lisgar.....	46,756	25,291	19,703	13,072	G. MUIR.....	Roland.....	P.C.
Marquette.....	49,190	26,009	23,015	14,748	N. MANDZUK.....	Oakburn.....	P.C.
Portage-Neepawa.....	55,875	28,338	23,448	15,304	G. C. FAIRFIELD.....	Portage la Prairie.....	P.C.
Provencher.....	40,658	20,220	15,290	8,278	W. H. JORGENSEN.....	Ste. Elizabeth.....	P.C.
St. Boniface.....	59,422	34,754	29,033	12,688	L. RÉGNIER.....	St. Boniface.....	P.C.
Selkirk.....	49,047	23,775	18,767	8,878	E. STEFANSON.....	Gimli.....	P.C.
Springfield.....	41,814	21,545	16,743	7,045	V. YACULA ¹	Winnipeg.....	P.C.
Winnipeg North.....	97,945	59,385	46,833	19,629	M. SMITH.....	Winnipeg.....	P.C.
Winnipeg North Centre.....	77,917	44,625	32,445	14,911	J. MACLEAN.....	Winnipeg.....	P.C.
Winnipeg South.....	98,248	62,091	51,478	32,308	G. CHOWN.....	Winnipeg.....	P.C.
Winnipeg South Centre.....	80,500	53,443	41,912	27,722	Hon. G. CHURCHILL.....	Winnipeg.....	P.C.
Saskatchewan—							
(17 members)							
Assiniboia.....	46,444	25,446	21,729	9,104	H. R. ARGUE*.....	Kayville.....	C.C.F.
Humboldt-Melfort.....	49,221	25,644	20,203	9,975	R. RAPP.....	Spalding.....	P.C.
Kindersley.....	47,724	26,043	21,434	8,935	R. L. HANBIDGE.....	Kerrobert.....	P.C.
Mackenzie.....	45,971	22,421	17,281	9,138	S. J. KORCHINSKI.....	Rama.....	P.C.
Meadow Lake.....	37,840	17,704	12,922	6,830	A. C. CADIEU.....	Spiritwood.....	P.C.
Melville.....	42,219	22,752	19,925	8,440	J. N. ORMISTON.....	Cupar.....	P.C.
Moose Jaw-Lake Centre.....	64,947	37,274	31,627	18,736	J. F. PASCOE.....	Moose Jaw.....	P.C.
Moose Mountain.....	42,897	24,673	20,253	9,287	R. R. SOUTHAM.....	Gainsborough.....	P.C.
Prince Albert.....	56,121	28,825	23,107	16,583	Rt. Hon. J. G. DIEFENBAKER*.....	Prince Albert.....	P.C.
Qu'Appelle.....	39,894	21,168	17,931	10,514	Hon. A. HAMILTON.....	Saskatoon.....	P.C.
Regina City.....	81,235	52,182	45,123	24,424	K. H. MORE.....	Regina.....	P.C.
Rosestown-Biggart.....	45,303	25,619	21,022	9,962	C. O. COOPER.....	Hawarden.....	P.C.
Rosthern.....	48,815	24,000	17,765	8,166	E. NASSERDEN.....	Warman.....	P.C.
Saskatoon.....	73,154	48,945	40,732	24,622	H. F. JONES.....	Saskatoon.....	P.C.
Swift Current-Maple Creek.....	55,313	31,487	25,823	11,618	J. MCINTOSH.....	Swift Current.....	P.C.
The Battlefords.....	52,300	26,355	20,430	10,970	A. HORNER.....	Blaine Lake.....	P.C.
Yorkton.....	51,267	27,601	22,642	9,882	G. D. CLANCY.....	Raymore.....	P.C.
Alberta—							
(17 members)							
Acadia.....	46,105	24,961	19,287	9,669	J. H. HORNER.....	Pollockville.....	P.C.
Athabasca.....	56,611	25,778	18,944	9,751	F. J. BIGG.....	Westlock.....	P.C.
Battle River-Camrose.....	57,676	30,103	22,828	13,049	C. S. SMALLWOOD.....	Irma.....	P.C.
Bow River.....	47,454	25,690	20,229	12,695	E. M. WOOLLIAMS.....	Calgary.....	P.C.
Calgary North.....	98,777	59,626	43,367	30,930	Hon. D. S. HARKNESS.....	Calgary.....	P.C.
Calgary South.....	95,245	57,290	42,210	29,482	A. SMITH.....	Calgary.....	P.C.
Edmonton East.....	70,755	40,322	28,319	15,236	W. SKORYKO.....	Edmonton.....	P.C.
Edmonton-Strathcona.....	91,293	54,429	42,531	25,885	T. NUGENT.....	Edmonton.....	P.C.
Edmonton West.....	106,778	61,781	46,763	30,937	M. LAMBERT.....	Edmonton.....	P.C.
Jasper-Edson.....	62,652	32,339	22,000	12,522	H. M. HORNER.....	Barrhead.....	P.C.
Lethbridge.....	62,332	28,764	23,101	13,364	D. R. GUNDLOCK.....	Warner.....	P.C.
Macleod.....	50,177	25,415	20,289	11,911	L. E. KINDT.....	High River.....	P.C.
Medicine Hat.....	56,918	30,150	23,682	10,886	E. W. BRUNSDEN.....	Brooks.....	P.C.
Peace River.....	69,725	34,262	22,800	13,328	G. W. BALDWIN.....	Peace River.....	P.C.
Red Deer.....	52,075	28,614	21,311	11,569	H. ROGERS.....	Red Deer.....	P.C.
Vegreville.....	45,322	23,641	17,091	7,918	F. J. W. FANE.....	Mundare.....	P.C.
Wetaskiwin.....	53,321	25,655	18,245	10,557	J. S. SPEAKMAN.....	Wetaskiwin.....	P.C.
British Columbia—							
(22 members)							
Burnaby-Coquitlam.....	67,202	39,681	30,179	12,917	E. REGIER.....	East Burnaby.....	C.C.F.
Burnaby-Richmond.....	73,030	44,357	34,284	15,570	J. DRYSDALE.....	Burnaby 1.....	P.C.
Cariboo.....	60,464	32,474	21,778	9,327	W. C. HENDERSON.....	Rolla.....	P.C.
Coast-Capilano.....	91,051	56,211	44,698	19,343	W. H. PAYNE.....	West Vancouver.....	P.C.
Comox-Alberni.....	65,414	33,454	25,111	11,483	H. C. MCQUILLAN.....	Courtenay.....	P.C.
Esquimalt-Saanich.....	59,812	37,371	28,937	18,768	Hon. G. R. PEARKES*.....	Saanich.....	P.C.

¹ Died Sept. 25, 1958; see Table 11 for by-election. Oct. 12, 1960; see Table 11 for by-election.

* Appointed Lieutenant-Governor of British Columbia

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-Fourth General Election, Mar. 31, 1958, and Revised to Jan. 31, 1962—concluded.

Province or Territory and Electoral District	Population, Census 1956	Voters on List	Total Votes Polled	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
British Columbia—concluded							
Fraser Valley.....	75,518	40,464	31,696	13,890	H. HICKS.....	Chilliwack.....	P.C.
Kamloops.....	59,139	31,202	22,036	13,858	Hon. E. D. FULTON.....	Kamloops.....	P.C.
Kootenay East.....	36,845	19,154	16,162	5,363	M. L. McFARLANE.....	Cranbrook.....	P.C.
Kootenay West.....	53,633	28,024	21,897	9,460	H. W. HERRIDGE.....	Nakus.....	C.C.F.
Nanaimo.....	52,805	31,184	24,616	10,734	W. F. MATTHEWS.....	Nanaimo.....	P.C.
New Westminster.....	104,632	66,614	51,162	21,202	W. A. McLENNAN.....	New Westminster.....	P.C.
Okanagan Boundary.....	58,903	33,275	27,115	13,065	D. V. PUGH.....	Oliver.....	P.C.
Okanagan-Revelstoke.....	32,744	17,742	14,710	7,004	S. FLEMING.....	Vernon.....	P.C.
Skeena.....	56,664	22,283	16,858	6,647	F. HOWARD.....	Terrace.....	C.C.F.
Vancouver-Burrard.....	59,862	42,155	29,978	18,001	J. TAYLOR.....	Vancouver.....	P.C.
Vancouver Centre.....	43,346	35,792	23,163	14,044	D. JUNG.....	Vancouver.....	P.C.
Vancouver East.....	57,302	34,152	23,913	11,486	H. E. WINCH.....	Vancouver.....	C.C.F.
Vancouver-Kingsway.....	61,720	38,270	28,132	11,928	J. F. BROWNE.....	Vancouver.....	P.C.
Vancouver Quadra.....	69,103	45,190	35,316	24,802	Hon. H. C. GREEN.....	Vancouver.....	P.C.
Vancouver South.....	77,716	48,907	37,093	22,292	E. J. BROOME.....	Vancouver.....	P.C.
Victoria.....	81,559	52,281	41,145	24,945	A. D. McPHILLIPS.....	Victoria.....	P.C.
Yukon Territory—(1 member)							
Yukon.....	12,190	6,071	5,469	2,947	E. NIELSEN.....	Whitehorse.....	P.C.
Northwest Territories—(1 member)							
Mackenzie River.....	12,492	6,716	4,945	2,782	M. A. HARDIE ¹	Yellowknife.....	Lib.

¹ Died Oct. 18, 1961; results of by-election in Appendix.

11.—By-elections from the Date of the Twenty-Fourth General Election, Mar. 31, 1958 to Jan. 31, 1962¹

Electoral District and Province	Date of By-election	Voters on List	Candidates	Votes Polled	Name of New Member	P.O. Address	Party Affiliation
		No.	No.	No.			
Montmagny-L'Islet, Que.....	Sept. 29, 1958	20,199	2	14,456	LOUIS FORTIN.....	Quebec.....	P.C.
Grenville-Dundas, Ont.....	Sept. 29, 1958	22,113	2	15,812	JEAN CASSELMAN.....	Prescott.....	P.C.
Toronto-Trinity, Ont.....	Dec. 15, 1958	28,693	4	12,017	PAUL T. HELLYER.....	Toronto.....	Lib.
Springfield, Man.....	Dec. 15, 1958	21,809	3	11,512	JOE SLOGAN.....	East Selkirk.....	P.C.
Hastings-Frontenac, Ont.....	Oct. 5, 1959	27,069	2	12,533	ROD WEBB.....	Norwood.....	P.C.
Russell, Ont.....	Oct. 5, 1959	53,954	3	36,607	PAUL TARDIF.....	Ottawa.....	Lib.
Royal, N.B.....	Oct. 31, 1960	21,326	3	16,972	HUGH JOHN FLEMMING.....	Fredericton.....	P.C.
Labelle, Que.....	Oct. 31, 1960	21,694	2	16,943	GASTON CLERMONT.....	Thurso.....	Lib.
Niagara Falls, Ont.....	Oct. 31, 1960	41,322	3	28,686	J. V. LAMARSH.....	Stanford Township.....	Lib.
Peterborough, Ont.....	Oct. 31, 1960	27,682	3	29,033	WALTER PITMAN.....	Peterborough.....	N.D.P.
Leeds, Ont.....	May 29, 1961	26,166	2	20,350	JOHN R. MATHESON.....	Brockville.....	Lib.
Restigouche-Madawaska, N.B.....	May 29, 1961	35,439	2	28,558	EDGAR E. FOURNIER.....	Iroquois.....	P.C.
Kings, P.E.I.....	May 29, 1961	9,898	2	8,837	MARGARET MARY MACDONALD.....	Cardigan.....	P.C.
Esquimalt-Saanich, B.C.....	May 29, 1961	41,053	5	27,788	GEORGE LOUIS CHATTERTON.....	Royal Oak.....	P.C.

¹ Any by-elections held between Jan. 31, 1962 and the date of going to press will be carried in an Appendix to this volume. ² New Democratic Party.

Indemnities and Allowances.—Members of the Senate receive a sessional allowance at the rate of \$8,000 per annum. In addition they receive at the end of each calendar year an annual expense allowance of \$2,000 which is subject to income tax. The member of the Senate occupying the recognized position of Leader of the Government in the Senate is paid, in addition to his sessional allowance, an annual allowance of \$10,000, and to the member of the Senate occupying the recognized position of Leader of the Opposition in the Senate there is paid, in addition to his sessional allowance, an annual allowance of \$6,000; but if the Leader of the Government is in receipt of a salary under the Salaries Act, the annual allowance is not paid. Members of the House of Commons are paid a sessional allowance at the rate of \$8,000 per annum. In addition they receive \$2,000 as an expense allowance paid at the end of each calendar year. This allowance, except that for Ministers of the Crown and for the Leader of the Opposition in the House of Commons, is not subject to income tax. The remuneration of the Prime Minister is \$25,000 a year and of a Cabinet Minister and the Leader of the Opposition \$15,000 a year in addition to the sessional allowance and expense allowance each receives as a Member of Parliament. A Cabinet Minister is also entitled to a motor car allowance of \$2,000. The remuneration of a Minister without Portfolio is \$7,500 a year in addition to the sessional allowance and expense allowance, the latter taxable. The Speaker of the Senate and the Speaker of the House of Commons each receives, besides the sessional allowance and expense allowance, a salary of \$9,000 and a motor car allowance of \$1,000 and each is entitled to \$3,000 in lieu of a residence. The Deputy Speaker of the House of Commons receives a salary of \$6,000 and an allowance of \$1,500 in lieu of a residence. The Deputy Chairman of Committees receives an annual allowance of \$2,000. Parliamentary Secretaries to the Ministers of the Crown receive \$8,000 sessional allowance as Members of Parliament, \$4,000 a year as Parliamentary Secretaries and the \$2,000 expense allowance paid to all Members of Parliament.

The Federal Franchise.—The present federal franchise laws are contained in the Canada Elections Act (SC 1960, c. 39). The franchise is conferred upon all Canadian citizens or British subjects, men and women, who have attained the age of 21 years, are ordinarily resident in the electoral district on the date of the issue of the writ ordering an election and, in the case of British subjects other than Canadian citizens, have been ordinarily resident in Canada for twelve months prior to polling day at such election. Persons denied the right to vote are:—

- (1) the Chief Electoral Officer and the Assistant Chief Electoral Officer;
- (2) judges appointed by the Governor General in Council;
- (3) the returning officer for each electoral district;
- (4) persons undergoing punishment as inmates of any penal institution for the commission of any offence;
- (5) persons restrained of their liberty or deprived of the management of their property by reason of mental disease; and
- (6) persons disqualified under any law relating to the disqualification of electors for corrupt and illegal practices.

Prior to July 1, 1960, the list of persons denied the right to vote included "Indians ordinarily resident on an Indian reserve who were not members of His Majesty's Forces in World Wars I or II or who did not execute a waiver of exemption under the Indian Act from taxation on and in respect of personal property". Legislation proclaimed on the above-mentioned date confers upon all Indians who have attained the age of 21 years the right to vote at federal elections, without taking from them any of the rights and privileges to which they are entitled under the Indian Act.

The Canadian Forces Voting Rules set out in Schedule II to the Canada Elections Act prescribe voting procedure for members of the Armed Forces of Canada and also for veterans in receipt of treatment or domiciliary care in certain institutions.

12.—Voters on the Lists and Votes Polled at the Federal General Elections of 1949, 1953, 1957 and 1958

NOTE.—Corresponding statistics for the General Elections of 1911, 1917, 1921 and 1925 are given in the 1926 Year Book, p. 82; those for 1926 in the 1945 edition, p. 66; those for 1930 and 1935 in the 1948-49 edition, p. 94; those for 1940 in the 1956 edition, p. 81; and those for 1945 in the 1957-58 edition, p. 57.

Province or Territory	Voters on the Lists				Votes Polled			
	1949	1953	1957	1958	1949	1953	1957	1958
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	182,439	194,715	197,657	204,778	105,190	111,768	92,986	160,928
Prince Edward Island.....	55,772	55,469	54,237	54,200	68,393 ¹	66,562 ¹	67,221 ¹	69,302 ¹
Nova Scotia.....	373,585	380,836	384,486	390,196	338,928 ²	334,855 ²	394,224 ²	418,479 ²
New Brunswick.....	286,723	287,657	291,185	294,387	225,877	225,390	236,997	249,706
Quebec.....	2,177,152	2,352,619	2,509,695	2,576,682	1,610,510	1,565,262	1,813,541	2,045,199
Ontario.....	2,718,118	2,894,150	3,100,943	3,189,422	2,042,294	1,938,959	2,295,124	2,531,555
Manitoba.....	451,882	465,374	474,068	481,552	324,079	276,422	351,909	385,648
Saskatchewan.....	472,884	480,532	484,355	488,139	375,471	356,479	392,329	399,949
Alberta.....	492,228	548,747	591,114	608,820	341,222	343,258	431,234	452,977
British Columbia.....	673,782	730,882	802,440	830,237	464,785	475,456	596,190	629,982
Yukon Territory ³	9,064	5,028	5,514	6,071	6,823	3,818	4,892	5,469
Northwest Territories ⁴....	...	5,682	6,431	6,716	...	3,596	4,043	4,945
Totals.....	7,593,629	8,401,691	8,902,125	9,131,200	5,903,572	5,701,825	6,650,690	7,357,139

¹ Each voter in the double-member constituency of Queens County, P.E.I., had two votes; in 1958, 24,930 voters on the list cast 42,954 votes. ² Each voter in the double-member constituency of Halifax, N.S., had two votes; in 1958, 112,253 voters on the list cast 179,287 votes. ³ Electoral District of Yukon. ⁴ Electoral District of Mackenzie River.

Subsection 3.—The Judiciary

The Federal Judiciary

The Parliament of Canada is empowered by Sect. 101 of the British North America Act to provide from time to time for the constitution, maintenance and organization of a general Court of Appeal for Canada and for the establishment of any additional courts for the better administration of the laws of Canada. Under this provision, Parliament has established the Supreme Court of Canada, the Exchequer Court of Canada and certain miscellaneous courts.

Supreme Court of Canada.—This Court, first established in 1875 and now governed by the Supreme Court Act (RSC 1952, c. 259), consists of a chief justice, who is called the Chief Justice of Canada, and eight puisne judges. The chief justice and the puisne judges are appointed by the Governor in Council and they hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and exercises general appellate jurisdiction throughout Canada in civil and criminal cases. The Court is also required to consider and advise upon questions referred to it by the Governor in Council and it may also advise the Senate or the House of Commons on private Bills referred to the Court under any rules or orders of the Senate or of the House of Commons.

Appeals may be brought from any final judgment of the highest court of final resort in a province in any case where the amount or value of the matter in controversy exceeds the sum of \$10,000. An appeal may be brought from any other final judgment with leave of the highest court of final resort in the province; if such court refuses to grant leave the Supreme Court of Canada may grant leave to appeal. The Supreme Court may grant leave to appeal from any judgment whether final or not. Appeals in respect of indictable offences are regulated by the Criminal Code. Appeals from federal courts are regulated by the statute establishing such courts. The judgment of the Supreme Court of Canada in all cases is final and conclusive.

13.—Chief Justice and Judges of the Supreme Court of Canada, as at Jan. 31, 1962

(In order of seniority)

Name	Date of Appointment
Hon. Chief Justice PATRICK KERWIN.....	July 1, 1954 ¹
Hon. Justice ROBERT TASCHEREAU.....	Feb. 9, 1940
Hon. Justice CHARLES H. LOCKE.....	June 3, 1947
Hon. Justice JOHN R. CARTWRIGHT.....	Dec. 23, 1949
Hon. Justice J. H. GERALD FAUTEUX.....	Dec. 23, 1949
Hon. Justice DOUGLAS CHARLES ABBOTT.....	July 1, 1954
Hon. Justice RONALD MARTLAND.....	Jan. 15, 1958
Hon. Justice WILFRED JUDSON.....	Feb. 5, 1958
Hon. Justice ROLAND A. RITCHIE.....	May 5, 1959

¹ First appointed as a Judge of the Supreme Court, July 20, 1935.

Exchequer Court of Canada.—The Exchequer Court was first established in 1875 as part of the Supreme Court of Canada but is now a separate court governed by the Exchequer Court Act (RSC 1952, c. 98). The Court consists of a president and four puisne judges who are appointed by the Governor in Council. The president and the puisne judges hold office during good behaviour but may be removed by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and also at any other place in Canada where sittings may be fixed by the Court. The jurisdiction of the Court extends to cases where claims are made by or against the Crown in right of Canada. Proceedings against the Crown are taken by petition of right pursuant to the Petition of Right Act (RSC 1952, c. 210).

An appeal lies to the Supreme Court of Canada from any final judgment of the Exchequer Court in which the amount in controversy exceeds \$500; an appeal also lies with leave of the Supreme Court in certain cases where the amount in controversy does not exceed \$500 or where the judgment is not final.

The Exchequer Court also exercises admiralty jurisdiction in Canada. This was first conferred in 1891 by the Admiralty Act (SC 1891, c. 29) and is now governed by the Admiralty Act (RSC 1952, c. 1). Under this statute the Exchequer Court is continued as a Court of Admiralty. The president and puisne judges of the Exchequer Court exercise admiralty jurisdiction throughout the whole of Canada. In addition, Canada is divided into various admiralty districts; a district judge in admiralty is appointed for each district. Appeals to the Supreme Court of Canada from judgments of the president or the puisne judges are governed by the general appeal provisions in the Exchequer Court Act. Appeals may be taken from a final judgment of a district judge in admiralty either to the Exchequer Court or direct to the Supreme Court of Canada.

Miscellaneous Courts.—*Railway Act.*—The Railway Act, 1903 (RSC 1952, c. 234) established the Board of Railway Commissioners for Canada as a court of record; by the Transport Act, 1938 (RSC 1952, c. 271) the name was changed to the Board of Transport Commissioners for Canada. This Court exercises jurisdiction with respect to railway matters. The Governor in Council is given jurisdiction to vary any order of the Board and an appeal lies from the Board to the Supreme Court of Canada upon a question of jurisdiction or a question of law.

Bankruptcy Act.—By virtue of Sect. 91(21) of the British North America Act, 1867, Parliament has exclusive legislative jurisdiction in relation to bankruptcy and insolvency. By the Bankruptcy Act (RSC 1952, c. 14) the superior courts of the provinces are constituted bankruptcy courts; original jurisdiction is conferred upon the trial courts and appellate jurisdiction is conferred upon the appeal courts of the provinces.

Income Tax Act and Estate Tax Act.—By the Income Tax Act (RSC 1952, c. 148) the Tax Appeal Board is established consisting of a chairman and not fewer than two or more than four members with jurisdiction over appeals against income tax assessments. A further appeal may be taken to the Exchequer Court. Under the Estate Tax Act (SC 1958, c. 29) the Tax Appeal Board also has jurisdiction to hear appeals from assessments under that Act.

Provincial and Territorial Judiciaries*

Certain provisions of the British North America Act govern to some extent the provincial judiciaries. Under Sect. 92 (14) the legislature of each province exclusively may make laws in relation to the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction. Sect. 96 provides that the Governor General shall appoint the judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick. Sect. 100 provides that the salaries, allowances and pensions of judges of the superior, district and county courts (except the courts of probate in Nova Scotia and New Brunswick) are to be fixed and provided by the Parliament of Canada and these are set out in the Judges Act (RSC 1952, c. 159 and amendments). Under Sect. 99, the judges of the superior courts hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. The tenure of office of district and county court judges is fixed by the Judges Act as being during good behaviour and their residence within the area for which the court is established.

All provinces have minor courts with limited civil and criminal jurisdiction, the judges of which are appointed by provincial authority as, for example, justices of the peace, magistrates and juvenile court judges. Except in Quebec, there are county or district courts of each province with limited jurisdiction varying from \$500 to \$2,500 in amount. Each province has a superior court with virtually unlimited jurisdiction variously known as Court of Queen's Bench, Supreme Court, Superior Court, etc. There is also a Court of Appeal in each province.

The Yukon Act and the Northwest Territories Act each provide for a superior court of record in and for the Territory, called the Territorial Court, and consisting of one or more judges appointed by the Governor in Council. The judges of the Territorial Court of the Yukon Territory are ex officio judges of the Territorial Court of the Northwest Territories and vice versa. In 1960 provision was made for a Court of Appeal for the Yukon Territory, comprised of the Chief Justice and Justices of Appeal of British Columbia and judges of the Territorial Court of Yukon and of the Northwest Territories. Police magistrates and justices of the peace have jurisdiction in minor civil and criminal cases.

Section 2.—Provincial and Territorial Governments†

In each of the provinces, the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council. The Lieutenant-Governor acts on the advice and with the assistance of his Ministry or Executive Council which is responsible to the Legislature and resigns office under circumstances similar to those described on pp. 55-56 concerning the Federal Government.

The Legislature of each province is unicameral, consisting of the Lieutenant-Governor and a Legislative Assembly, except for the Province of Quebec where there is a Legislative Council as well as a Legislative Assembly.

The Legislative Assembly is elected by the people for a statutory term of five years but may be dissolved within that period by the Lieutenant-Governor on the advice of the Premier of the province.

* More detailed information concerning provincial judiciaries is given in the 1954 Year Book, pp. 48-55.

† The information given in Subsections 1 to 10 of this Section is brought up to Jan. 31, 1962.

The source of legislative authority of the Provincial Legislatures is the British North America Act, 1867 (Br. Stat. 1867, c. 3 and amendments). Under Sect. 92 of the Act the Legislature of each province exclusively may make laws in relation to the following matters: amendment of the constitution of the province except as regards the Lieutenant-Governor; direct taxation within the province; borrowing of money on the credit of the province; establishment and tenure of provincial offices and appointment and payment of provincial officers; the management and sale of public lands belonging to the province and of the timber and wood thereon; the establishment, maintenance and management of public and reformatory prisons in and for the province; the establishment, maintenance and management of hospitals, asylums, charities and eleemosynary institutions in and for the province, other than marine hospitals; municipal institutions in the province; shop, saloon, tavern, auctioneer and other licences issued for the raising of provincial or municipal revenue; local works and undertakings other than interprovincial or international lines of ships, railways, canals, telegraphs, etc., or works which, though wholly situated within one province, are declared by the Federal Parliament to be for the general advantage either of Canada or of two or more provinces; the incorporation of companies with provincial objects; the solemnization of marriage in the province; property and civil rights in the province; the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction including procedure in civil matters in these courts; the imposition of punishment by fine, penalty or imprisonment for enforcing any law of the province relating to any of the aforesaid subjects; generally all matters of a merely local or private nature in the province.

Further, in and for each province the Legislature exclusively may, under Sect. 93, make laws in relation to education subject to certain restrictions relating to the establishment of schools by religious minorities. These powers with similar restrictions were conferred on the more recently admitted provinces on their inclusion in the federation.

The Provincial Legislatures may also make laws under Sect. 95 in relation to agriculture and immigration, subject to any laws of the Parliament of Canada in relation to these subjects.

Provincial Franchise.—Details regarding qualifications and disqualifications of the franchise are contained in the Elections Act of each province. In general, every person, male or female, at the age of 21 years who is a Canadian citizen or other British subject, who complies with certain residence requirements in the province and the electoral district of polling and who falls under no statutory disqualifications, is entitled to vote. These qualifications apply with modifications to voters in most provinces. The principal exceptions give voting privileges to persons in Saskatchewan at the age of 18 and in Alberta and British Columbia at 19 years.

Subsection 1.—Newfoundland

The Government of Newfoundland consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Legislative Assembly has 36 members elected for a term of five years. The Legislature elected Aug. 20, 1959 is the 32nd in the history of Newfoundland and the 4th since Confederation.

Since the date of Confederation, Mar. 31, 1949, the province has had three Lieutenant-Governors: the Hon. Sir Albert Joseph Walsh commissioned Apr. 1, 1949; the Hon. Lt.-Col. Sir Leonard Outerbridge commissioned Sept. 5, 1949; and the Hon. Campbell Macpherson commissioned Dec. 16, 1957. The first Ministry, formed on July 13, 1949 under the leadership of the Hon. Joseph R. Smallwood, was still in office on Jan. 31, 1962.

The Premier receives a salary of \$10,000 and the other Cabinet Ministers \$9,000 per annum, plus a sessional indemnity of \$3,333.33. Each member of the House of Assembly receives a sessional indemnity of \$3,333.33 plus a travelling and expense allowance of \$1,666.66. An additional allowance of \$3,000 is made to the Leader of the Opposition.

14.—First Ministry of Newfoundland, as at Jan. 31, 1962

(Party standing at latest General Election, Aug. 20, 1959: 31 Liberal, 3 Progressive Conservative and 2 United Newfoundland.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Economic Development.....	Hon. J. R. SMALLWOOD.....	Apr. 1, 1949	Apr. 1, 1949
Attorney General.....	Hon. L. R. CURTIS.....	Apr. 1, 1949	Apr. 1, 1949
Minister of Mines and Resources.....	Hon. W. J. KEOUGH.....	July 29, 1949	May 1, 1957
Minister of Labour.....	Hon. C. H. BALLAM.....	Apr. 4, 1950	Apr. 4, 1950
Minister of Finance.....	Hon. E. S. SPENCER.....	July 29, 1949	May 1, 1957
Minister of Public Works.....	Hon. J. R. CHALKER.....	Apr. 4, 1950	May 1, 1957
Minister of Highways.....	Hon. F. W. ROWE.....	May 21, 1952	May 11, 1959
Minister without Portfolio.....	Hon. P. J. LEWIS.....	Dec. 15, 1951	Dec. 15, 1951
Minister of Provincial Affairs and Solicitor General.....	Hon. MYLES P. MURRAY.....	Dec. 15, 1951	(Dec. 15, 1951 Apr. 10, 1955)
Minister of Fisheries.....	Hon. J. T. CHEESEMAN.....	May 1, 1957	May 1, 1957
Minister of Health.....	Hon. J. M. McGRATH.....	July 5, 1956	Aug. 7, 1956
Minister of Municipal Affairs and Supply.....	Hon. B. J. ABROTT.....	May 1, 1957	May 1, 1957
Minister of Education.....	Hon. G. A. FRECKER.....	Aug. 26, 1959	Aug. 26, 1959
Minister of Public Welfare.....	Hon. C. M. LANE.....	June 12, 1961	June 12, 1961

Subsection 2.—Prince Edward Island

The Government of Prince Edward Island consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Hon. F. W. Hyndman, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Mar. 31, 1958. Lieutenant-Governors from Confederation (1873) to 1959 are cited in the 1960 Year Book, p. 105.

The General Assembly elected Sept. 1, 1959 is the 49th in the history of Prince Edward Island Legislatures and the 24th since Confederation. It has 30 members from 15 electoral districts who serve for a statutory term of five years. One-half of the members of the Legislative Assembly are elected on a property vote. Each district elects one Councillor (elected on a property vote) and one Assembly member (elected on a general franchise vote). Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 105.

The annual salary of the Premier is \$6,000 and that of a Cabinet Minister \$4,000. Each member of the Assembly is paid \$1,450 for each session attended by him and an additional \$500 tax free as indemnity for expenses incurred. The Speaker is paid an additional \$400 and a further additional \$200 tax free as an indemnity. The Leader of the Opposition is paid an additional \$800 and a further additional \$200 tax free for expenses incurred by him in performance of official duties.

15.—Legislatures of Prince Edward Island, 1935-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 75, and for 1924-35 in the 1938 edition, p. 110.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
July 23, 1935	18th.....	5	Sept. 25, 1935	Apr. 21, 1939
May 18, 1939	19th.....	4	Mar. 20, 1940	Aug. 20, 1943
Sept. 15, 1943	20th.....	4	Feb. 15, 1944	Oct. 27, 1947
Dec. 11, 1947	21st.....	5	Feb. 24, 1948	Mar. 30, 1951
Apr. 26, 1951	22nd.....	6	Oct. 23, 1951	Apr. 27, 1955
May 25, 1955	23rd.....	4	Feb. 2, 1956	Aug. 3, 1959
Sept. 1, 1959	24th.....	1	Mar. 1, 1960	1

¹ Life of Legislature not expired at Jan. 31, 1962.

16.—Twenty-Fourth Ministry of Prince Edward Island, as at Jan. 31, 1962

(Party standing at latest General Election, Sept. 1, 1959: 22 Progressive Conservative and 8 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Executive Council.....	Hon. WALTER R. SHAW.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Public Works and Minister of Highways.....	Hon. J. PHILIP MATHESON.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Education.....	Hon. L. GEORGE DEWAR.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Industry and Natural Resources and Minister of Fisheries.....	Hon. LEO F. ROSSITER.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Health.....	Hon. HUBERT B. MCNEILL.....	Sept. 16, 1959	Sept. 16, 1959
Provincial Treasurer, Attorney and Advocate General.....	Hon. MELVIN J. MCQUAID.....	Sept. 16, 1959	{Sept. 16, 1959 Sept. 16, 1960
Provincial Secretary, Minister of Tourist Development and Minister of Municipal Affairs.....	Hon. J. DAVID STEWART.....	Sept. 16, 1959	{Sept. 16, 1959 Apr. 13, 1960
Minister of Welfare and Labour.....	Hon. HENRY W. WEDGE.....	Sept. 16, 1959	Sept. 16, 1959
Minister of Agriculture.....	Hon. ANDREW B. MACRAE.....	Sept. 16, 1960	Sept. 16, 1960

Subsection 3.—Nova Scotia

The Government of Nova Scotia consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Maj.-Gen. the Hon. F. C. Plow, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Sept. 1, 1958. Lieutenant-Governors since Confederation (1867) are cited in the 1960 Year Book, p. 106.

The Legislature has 43 members elected for a maximum term of five years. The Legislature elected June 7, 1960 is the 47th in Nova Scotia's history and the 24th since Confederation. Premiers since Confederation are listed in the 1960 Year Book, p. 107.

The Premier of the province receives a salary of \$12,000 per annum and each Cabinet Minister a salary of \$10,000 per annum. Each member of the House of Assembly receives a sessional indemnity of \$3,200 and an allowance of \$1,600 for expenses incidental to the discharge of his duties. The Leader of the Opposition receives an allowance of \$6,000 in addition to his sessional indemnity.

17.—Legislatures of Nova Scotia, 1933-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 76, and for 1924-33 in the 1938 edition, p. 111.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 22, 1933	17th.....	4	Mar. 1, 1934	May 20, 1937
June 29, 1937	18th.....	4	Mar. 1, 1938	Sept. 19, 1941
Oct. 28, 1941	19th.....	4	Feb. 19, 1942	Sept. 12, 1945
Oct. 23, 1945	20th.....	4	Mar. 14, 1946	Apr. 27, 1949
June 9, 1949	21st.....	4	Mar. 21, 1950	Apr. 14, 1953
May 26, 1953	22nd.....	3	Feb. 24, 1954	Sept. 20, 1956
Oct. 30, 1956	23rd.....	3	Feb. 27, 1957	Apr. 26, 1960
June 7, 1960	24th.....	1	Feb. 8, 1961	1

¹ Life of Legislature not expired at Jan. 31, 1962.

18.—Seventeenth Ministry of Nova Scotia, as at Jan. 31, 1962

(Party standing at latest General Election, June 7, 1960: 27 Progressive Conservative, 15 Liberal and 1 Co-operative Commonwealth Federation.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, Provincial Treasurer, and Minister of Education.....	Hon. R. L. STANFIELD.....	Nov. 20, 1956	{ Nov. 20, 1956 July 27, 1959
Minister of Highways and Chairman of the Nova Scotia Power Commission.....	Hon. G. I. SMITH.....	Nov. 20, 1956	Nov. 20, 1956
Attorney General and Minister of Public Health.....	Hon. R. A. DONAHOE.....	Nov. 20, 1956	Nov. 20, 1956
Minister of Public Works and Minister of Labour.....	Hon. S. T. PYKE.....	Nov. 20, 1956	Nov. 20, 1956
Minister of Agriculture and Marketing and Minister of Lands and Forests.....	Hon. E. D. HALIBURTON.....	Nov. 20, 1956	{ Nov. 20, 1956 July 27, 1959
Minister of Trade and Industry.....	Hon. E. A. MANSON.....	Nov. 20, 1956	Nov. 20, 1956
Minister of Municipal Affairs and Minister in charge of Civil Defence.....	Hon. N. L. FERGUSON.....	Nov. 20, 1956	July 27, 1959
Provincial Secretary and Minister of Public Welfare.....	Hon. W. S. KENNEDY JONES.....	Apr. 21, 1960	Oct. 20, 1960
Minister of Mines and Minister in charge of the Liquor Control Act.....	Hon. DONALD M. SMITH.....	Oct. 13, 1960	{ Dec. 12, 1961 Oct. 13, 1960
Minister without Portfolio.....	Hon. GEORGE A. BURRIDGE.....	Oct. 13, 1960	Oct. 13, 1960

Subsection 4.—New Brunswick

The Government of New Brunswick has a Lieutenant-Governor, an Executive Council and a House of Assembly. The Hon. J. Leonard O'Brien, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office June 6, 1958. Lieutenant-Governors since Confederation (1867) are cited in the 1960 Year Book, p. 108.

The Legislature elected June 27, 1960 is the 44th in New Brunswick's history and the 17th since Confederation. It has 52 members who are elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 108.

The Premier receives \$5,000 per annum in addition to the salary for any other portfolio he may hold. The salary of each Cabinet Minister is \$7,500 and the amount paid as indemnity to each member of the House of Assembly is \$2,400 plus an additional \$1,200 allowance for expenses. The Leader of the Opposition receives an additional \$3,000 and the Speaker receives an allowance of \$1,000 in addition to the regular indemnity.

19.—Legislatures of New Brunswick, 1935-60, as at Jan. 31, 1962

Note.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 77, and for 1924-35 in the 1938 edition, p. 112.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 27, 1935	11th.....	4	Mar. 5, 1936	Oct. 26, 1939
Nov. 20, 1939	12th.....	5	Apr. 4, 1940	July 10, 1944
Aug. 28, 1944	13th.....	4	Feb. 20, 1945	May 18, 1948
June 28, 1948	14th.....	4	Mar. 8, 1949	July 16, 1952
Sept. 22, 1952	15th.....	4	Feb. 12, 1953	Apr. 17, 1956
June 18, 1956	16th.....	4	Feb. 21, 1957	May 19, 1960
June 27, 1960	17th.....	1	Nov. 17, 1960	1

¹ Life of Legislature not expired at Jan. 31, 1962.

20.—Twenty-Third Ministry of New Brunswick, as at Jan. 31, 1962

(Party standing at latest General Election, June 27, 1960: 31 Liberal and 21 Progressive Conservative.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Attorney General.....	Hon. LOUIS J. ROBICHAUD.....	July 12, 1960	July 12, 1960
Provincial Secretary-Treasurer.....	Hon. L. G. DESBRISAY.....	July 12, 1960	July 12, 1960
Minister of Lands and Mines.....	Hon. H. G. CROCKER.....	July 12, 1960	July 12, 1960
Minister of Education.....	Hon. HENRY G. IRWIN.....	July 12, 1960	July 12, 1960
Minister of Public Works.....	Hon. ANDREW F. RICHARD.....	July 12, 1960	July 12, 1960
Minister of Agriculture.....	Hon. J. ADRIEN LEVESQUE.....	July 12, 1960	July 12, 1960
Minister of Health and Social Services.....	Hon. GEORGE L. DUMONT.....	July 12, 1960	July 12, 1960
Minister of Labour.....	Hon. KENNETH J. WEBBER.....	July 12, 1960	July 12, 1960
Minister of Municipal Affairs.....	Hon. JOSEPH E. LeBLANC.....	July 12, 1960	July 12, 1960
Chairman, New Brunswick Electric Power Commission.....	Hon. DONALD HARPER.....	July 12, 1960	July 12, 1960
Minister of Youth and Welfare.....	Hon. WILLIAM R. DUFFIE.....	July 12, 1960	Nov. 30, 1960
Minister of Industry and Development.....	Hon. MICHEL FOURNIER.....	July 12, 1960	July 12, 1960

Subsection 5.—Quebec

The Government of Quebec consists of a Lieutenant-Governor, an Executive Council and a bicameral legislature—the Legislative Council and the Legislative Assembly. The Hon. Paul Comtois, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Oct. 6, 1961. Lieutenant-Governors since Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 109.

The Legislative Council has 24 members nominated for life by the Lieutenant-Governor in Council. The Legislative Assembly has 95 elected members and, like the Legislative Council, has the power to bring forward Bills relating to civil and administrative matters and to the amendment or repeal of existing laws. A Bill to be approved by the Lieutenant-Governor must have received the assent of both Houses. Only the Legislative Assembly can bring forward a Bill requiring the expenditure of public money. The maximum life of a Legislature is five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 110.

21.—Legislatures of Quebec, 1935-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 78, and for 1924-35 in the 1938 edition, p. 113.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Nov. 25, 1935	19th.....	1	Mar. 24, 1936	June 11, 1936
Aug. 17, 1936	20th.....	4	Oct. 7, 1936	Sept. 23, 1939
Oct. 25, 1939	21st.....	5	Feb. 20, 1940	June 29, 1944
Aug. 8, 1944	22nd.....	4	Feb. 7, 1945	June 9, 1948
July 28, 1948	23rd.....	4	Jan. 19, 1949	May 28, 1952
July 16, 1952	24th.....	4	Nov. 12, 1952	Apr. 25, 1956
June 20, 1956	25th.....	4	Nov. 14, 1956	Apr. 27, 1960
June 22, 1960	26th.....	1	Sept. 20, 1960	1

¹Life of Legislature not expired at Jan. 31, 1962.

22.—Twenty-Third Ministry of Quebec, as at Jan. 31, 1962

(Party standing at latest General Election, June 22, 1960: 51 Liberal, 43 Union Nationale and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, Minister of Finance and Minister of Federal-Provincial Affairs.....	Hon. JEAN LESAGE.....	July 6, 1960	Apr. 1, 1961
Attorney General and Minister of Cultural Affairs.....	Hon. GEORGES LAPALME.....	July 6, 1960	Apr. 1, 1961
Minister of Labour.....	Hon. RENÉ HAMEL.....	July 6, 1960	July 6, 1960
Minister of Youth.....	Hon. PAUL GÉRIN-LAJOIE.....	July 6, 1960	July 6, 1960
Minister of Agriculture and Minister of Colonization.....	Hon. ALCIDE COURCY.....	July 6, 1960	July 6, 1960
Minister of Natural Resources.....	Hon. RENÉ LÉVESQUE.....	July 6, 1960	Apr. 1, 1961
Minister of Provincial Revenue.....	Hon. PAUL EARL.....	July 6, 1960	Apr. 1, 1961
Minister of Transportation and Communications.....	Hon. GÉRARD COURNOYER.....	July 6, 1960	July 6, 1960
Minister of Roads.....	Hon. BERNARD PINARD.....	July 6, 1960	July 6, 1960
Minister of Family and Social Welfare.....	Hon. ÉMILIEN LAFRANCE.....	July 6, 1960	July 6, 1960
Provincial Secretary.....	Hon. LIONEL BERTRAND.....	July 6, 1960	July 6, 1960
Minister of Health.....	Hon. ALPHONSE COUTURIER.....	July 6, 1960	July 6, 1960
Minister of Fisheries and Game.....	Hon. GÉRARD D. LÉVESQUE.....	July 6, 1960	July 6, 1960
Minister of Industry and Commerce.....	Hon. ANDRÉ ROUSSEAU.....	July 6, 1960	July 6, 1960
Minister of Lands and Forests.....	Hon. BONA ARSENAULT.....	July 6, 1960	July 6, 1960
Minister of Public Works.....	Hon. RENÉ SAINT-PIERRE.....	Mar. 28, 1961	Mar. 28, 1961
Minister without Portfolio.....	Hon. GEORGE C. MARLER.....	Oct. 8, 1960	Oct. 8, 1960
Minister of Municipal Affairs.....	Hon. LUCIEN CLICHE.....	Dec. 20, 1961	Dec. 20, 1961

23.—Members of the Legislative Council of Quebec, as at Jan. 31, 1962

(According to seniority)

Name	Division	Date of Appointment
R. O. GROTHÉ.....	De Salaberry.....	Dec. 23, 1927
VICTOR MARCHAND.....	Rigaud.....	Apr. 15, 1932
HECTOR LAFERTÉ (Speaker).....	Stadacona.....	July 23, 1934
J. L. BARIBEAU.....	Shawinigan.....	Jan. 14, 1938
PHILIPPE BRAIS.....	Grandville.....	Feb. 16, 1940
JULES BRILLANT.....	Golfe.....	Jan. 14, 1942
FRANK L. CONNORS.....	Mille Isles.....	Jan. 14, 1942
FÉLIX MESSIER.....	De Lanaudière.....	Feb. 12, 1942
ÉDOUARD ASSELIN.....	Wellington.....	Jan. 23, 1946
GEO. B. FOSTER.....	Victoria.....	Aug. 22, 1946
GÉRALD MARTINEAU.....	Lauson.....	Aug. 22, 1946
J. OLIER RENAUD.....	Alma.....	Aug. 22, 1946
PATRICE TARDIF.....	De la Vallière.....	July 20, 1952
JOSEPH BOULANGER.....	De la Durantaye.....	Oct. 8, 1952
ÉDOUARD MASSON.....	Repentigny.....	Mar. 12, 1953
ALBERT BOUCHARD.....	La Salle.....	Nov. 24, 1954
JEAN BARRETTE.....	Sorel.....	Oct. 19, 1955
ÉMILE LESAGE.....	Montarville.....	Aug. 1, 1956
ALBINY PAQUETTE.....	Rougemont.....	Oct. 29, 1958
JOHN P. ROWATT.....	De Lorinier.....	Oct. 29, 1958
ERNEST BENOIT.....	Kennebec.....	Apr. 8, 1959
OSCAR GILBERT.....	Bedford.....	Mar. 30, 1960
JEAN RAYMOND.....	Les Laurentides.....	Apr. 27, 1960
GEORGE C. MARLER (Leader).....	Inkerman.....	Oct. 8, 1960

Subsection 6.—Ontario

The Government of Ontario consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. The Hon. Justice John Keiller Mackay, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Dec. 30, 1957. Lieutenant-Governors since Confederation (1867) are cited in the 1960 Year Book, p. 112.

The House of Assembly, the single-chamber Legislature of the province, is composed of 98 members elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 112.

Besides the regular departments of government, the Niagara Parks Commission, the Ontario Municipal Board, The Hydro-Electric Power Commission of Ontario, the Ontario-St. Lawrence Development Commission, the Ontario Northland Transportation Commission, the Liquor Control Board, the Liquor Licence Board, the Hospital Services Commission and The Water Resources Commission have been created.

Under the provisions of the Legislative Assembly Act (RSO 1960, c. 208) each member of the Assembly is paid an annual indemnity of \$5,000 and an allowance of \$2,000 for expenses. In addition, the Speaker receives a special indemnity at the annual rate of \$3,000 and an expense allowance of \$2,000; the Chairman of the Committee of the Whole a special indemnity at the annual rate of \$2,000; and the Leader of the Opposition a salary of \$12,000 per annum. Each member of the Cabinet having charge of a department receives the ordinary indemnity as a member of the Legislature in addition to his salary as a Minister of the Crown. The salary provided in the Executive Council Act for the Premier is \$16,000 and for a Cabinet Minister having charge of a department \$12,000. By the 1956 amendment, every Minister of the Crown in charge of a department, the Minister of the Crown who is a member of The Hydro-Electric Power Commission of Ontario, and the Leader of the Opposition receives a representation allowance of \$2,000 per annum. Each Minister without Portfolio, other than the Minister who is a member of The Hydro-Electric Power Commission, receives \$2,500 salary and \$1,000 representation allowance per annum, by amendments in 1959 to the Executive Council Act and the Legislative Assembly Act, respectively.

24.—Legislatures of Ontario, 1934-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 79, and for 1924-34 in the 1938 edition, p. 114.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 19, 1934	19th.....	3	Feb. 20, 1935	Apr. 9, 1936
Oct. 6, 1937	20th.....	8	Dec. 1, 1937	June 20, 1943
Aug. 4, 1943	21st.....	2	Feb. 22, 1944	Mar. 24, 1945
June 4, 1945	22nd.....	4	July 16, 1945	Apr. 27, 1948
June 7, 1948	23rd.....	4	Feb. 10, 1949	Oct. 6, 1951
Nov. 22, 1951	24th.....	5	Feb. 21, 1952	May 2, 1955
June 9, 1955	25th.....	5	Sept. 8, 1955	May 4, 1959
June 11, 1959	26th.....	1	Jan. 26, 1960	1

¹ Life of Legislature not expired at Jan. 31, 1962.

25.—Seventeenth Ministry of Ontario, as at Jan. 31, 1962

(Party standing at latest General Election, June 11, 1959: 71 Progressive Conservative, 22 Liberal and 5 Co-operative Commonwealth Federation.)

NOTE.—Ministers are shown at date of original appointment as a Minister and at date of appointment to present portfolio, despite the formation of a new Ministry consequent upon the appointment of a new Premier.

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Council and Minister of Education.....	Hon. JOHN P. ROBERTS.....	Dec. 22, 1958	{Nov. 8, 1961 (Dec. 17, 1959)
Attorney-General and Minister in Charge of the Department of Insurance.....	Hon. A. KELSO ROBERTS.....	Aug. 17, 1955	Aug. 17, 1955
Minister without Portfolio.....	Hon. CHARLES DALEY.....	Aug. 17, 1943	Nov. 8, 1961
Minister of Highways.....	Hon. WILLIAM A. GOODFELLOW.....	Jan. 7, 1946	Nov. 8, 1961
Minister of Public Welfare.....	Hon. LOUIS P. CECILE.....	Sept. 17, 1948	Aug. 17, 1955
Minister of Labour.....	Hon. WILLIAM K. WARRENDER.....	Jan. 20, 1953	Nov. 8, 1961
Treasurer.....	Hon. JAMES N. ALLAN.....	Jan. 5, 1955	Apr. 28, 1958
Minister without Portfolio.....	Hon. WILLIAM M. NICKLE.....	Jan. 20, 1955	Nov. 8, 1961
Minister of Travel and Publicity.....	Hon. BRYAN L. CATHCART.....	Aug. 17, 1955	Aug. 17, 1955
Minister of Public Works.....	Hon. T. RAY CONNELL.....	Nov. 1, 1956	Dec. 22, 1958
Minister of Health.....	Hon. MATTHEW B. DYMOND.....	July 18, 1957	Dec. 22, 1958
Minister of Lands and Forests.....	Hon. J. WILFRID SPOONER.....	July 18, 1957	July 23, 1958
Minister of Municipal Affairs.....	Hon. FREDERICK M. CASS.....	Apr. 28, 1958	Nov. 8, 1961
Provincial Secretary and Minister of Citizenship.....	Hon. JOHN YAREMKO.....	Apr. 28, 1958	May 26, 1960
Minister of Energy Resources and Minister of Economics and Development.....	Hon. ROBERT W. MACAULAY.....	May 26, 1958	{May 5, 1959 (Jan. 15, 1962)
Minister of Mines.....	Hon. GEORGE C. WARDROPE.....	Dec. 22, 1958	Nov. 8, 1961
Minister of Transport.....	Hon. H. LESLIE ROWNTREE.....	Nov. 21, 1960	Nov. 21, 1960
Minister without Portfolio.....	Hon. ALLAN GROSSMAN.....	Nov. 21, 1960	Nov. 21, 1960
Minister of Agriculture.....	Hon. WILLIAM A. STEWART.....	Nov. 21, 1960	Nov. 8, 1961
Minister without Portfolio.....	Hon. CHARLES S. MACNAUGHTON.....	Nov. 8, 1961	Nov. 8, 1961
Minister of Reform Institutions.....	Hon. IRWIN HASKETT.....	Nov. 8, 1961	Nov. 8, 1961

Subsection 7.—Manitoba

In addition to a Lieutenant-Governor, Manitoba has an Executive Council at present composed of 11 members and a Legislative Assembly of 57 members elected for a statutory term of five years. The Hon. Errick F. Willis, Lieutenant-Governor at Jan. 31, 1962, was sworn in on Jan. 15, 1960. Lieutenant-Governors from Confederation (1870) to 1959 are cited in the 1960 Year Book, p. 113. Premiers since Confederation are listed in the 1960 Year Book, p. 114.

The Premier of the province is paid a salary of \$12,000 per annum and each of the other members of the Cabinet \$10,000. Members of the Legislature are each paid a sessional indemnity of \$2,667 and an expense allowance of \$1,333. The Leader of the Opposition is paid an additional amount of \$3,500 and the Speaker of the Legislature receives an amount double the indemnity and expense allowance of an individual member.

26.—Legislatures of Manitoba, 1936-59, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 80, and for 1924-36 in the 1938 edition, p. 115.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
July 27, 1936	20th.....	5	Feb. 18, 1937	Mar. 13, 1941
Apr. 22, 1941	21st.....	5	Dec. 9, 1941	Sept. 8, 1945
Oct. 15, 1945	22nd.....	4	Feb. 19, 1946	Sept. 29, 1949
Nov. 10, 1949	23rd.....	7	Feb. 14, 1950	Apr. 23, 1953
June 8, 1953	24th.....	5	Feb. 2, 1954	Apr. 30, 1958
June 16, 1958	25th.....	2	Oct. 23, 1958	Mar. 31, 1959
May 14, 1959	26th.....	1	June 9, 1959	1

¹ Life of Legislature not expired at Jan. 31, 1962.

27.—Fifteenth Ministry of Manitoba, as at Jan. 31, 1962

(Party standing at latest General Election, May 14, 1959: 36 Progressive Conservative, 11 Liberal and 10 Co-operative Commonwealth Federation.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Acting Provincial Treasurer....	Hon. DUFFERIN ROBLIN.....	June 30, 1958	June 30, 1958
Minister of Public Works.....	Hon. JOHN W. M. THOMPSON.....	June 30, 1958	Dec. 17, 1959
Attorney General and Minister of Public Utilities	Hon. STERLING R. LYON.....	June 30, 1958	{ June 30, 1958 Oct. 31, 1961
Minister of Education.....	Hon. STEWART E. McLEAN.....	June 30, 1958	{ Aug. 26, 1960 June 30, 1958
Provincial Secretary and Minister of Industry and Commerce.....	Hon. EDWARD GURNEY V. EVANS	June 30, 1958	{ Dec. 17, 1959 Aug. 7, 1959
Minister of Health.....	Hon. GEORGE JOHNSON.....	June 30, 1958	June 30, 1958
Minister of Labour.....	Hon. J. B. CARROLL.....	June 30, 1958	Dec. 17, 1959
Minister of Mines and Natural Resources....	Hon. CHARLES H. WITNEY.....	Aug. 7, 1959	Aug. 7, 1959
Minister of Agriculture and Conservation....	Hon. GEORGE HUTTON.....	Aug. 7, 1959	Aug. 7, 1959
Minister of Municipal Affairs.....	Hon. WALTER WEIR.....	Nov. 1, 1961	Nov. 1, 1961
Minister of Welfare.....	Hon. JOHN CHRISTIANSON.....	Nov. 1, 1961	Nov. 1, 1961

Subsection 8.—Saskatchewan

The Government of Saskatchewan consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Hon. F. L. Bastedo, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Jan. 27, 1958. Lieutenant-Governors since Confederation (1905) are cited in the 1960 Year Book, p. 115.

The statutory number of members of the Legislative Assembly is 55, elected for a maximum term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 115.

The Premier receives \$9,500 and each Cabinet Minister \$8,000 annually in addition to a sessional indemnity. The Leader of the Opposition receives \$5,000 plus an office allowance of \$6,000 per annum, the Speaker \$2,500 and the Deputy Speaker \$1,500. The sessional indemnity of a member of the Legislature is \$3,200 together with an expense allowance of \$1,600. Members for the three northernmost constituencies of Cumberland, Athabasca and Meadow Lake each receive a \$3,500 sessional indemnity and a \$1,750 expense allowance.

28.—Legislatures of Saskatchewan, 1934-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 81, and for 1924-34 in the 1938 edition, p. 116.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 19, 1934	8th.....	4	Nov. 15, 1934	May 14, 1938
June 8, 1938	9th.....	6	Jan. 19, 1939	May 10, 1944
June 15, 1944	10th.....	5	Oct. 19, 1944	May 19, 1948
June 24, 1948	11th.....	5	Feb. 10, 1949	May 7, 1952
June 11, 1952	12th.....	4	Feb. 12, 1953	Apr. 25, 1956
June 20, 1956	13th.....	4	Feb. 14, 1957	May 4, 1960
June 8, 1960	14th.....	1	Oct. 11, 1960	

¹ Life of Legislature not expired at Jan. 31, 1962.

29.—Ninth Ministry of Saskatchewan, as at Jan. 31, 1962

(Party standing at latest General Election, June 8, 1960: 38 Co-operative Commonwealth Federation and 17 Liberal.)

NOTE.—Ministers are shown at date of original appointment as a Minister and at date of appointment to present portfolio, despite the formation of a new Ministry consequent upon the appointment of a new Premier.

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of the Executive Council.....	Hon. W. S. LLOYD.....	July 10, 1944	Nov. 7, 1961
Minister of Mineral Resources.....	Hon. J. H. BROCKELBANK.....	July 10, 1944	Apr. 1, 1953
Provincial Treasurer.....	Hon. A. E. BLAKENEY.....	Aug. 1, 1960	Nov. 7, 1961
Minister of Co-operation and Co-operative Development.....	Hon. L. F. McINTOSH.....	July 10, 1944	Nov. 21, 1961
Minister of Labour and Minister of Telephones	Hon. C. C. WILLIAMS.....	July 10, 1944	{ Nov. 13, 1944 July 27, 1956
Minister of Agriculture.....	Hon. I. C. NOLLET.....	Jan. 8, 1946	Jan. 8, 1946
Minister of Natural Resources.....	Hon. A. G. KUZIAK.....	Oct. 24, 1952	July 27, 1956
Attorney General and Provincial Secretary..	Hon. R. A. WALKER.....	July 27, 1956	{ July 27, 1956 Aug. 30, 1957
Minister of Industry and Information.....	Hon. R. BROWN.....	July 27, 1956	Apr. 1, 1960
Minister of Public Works.....	Hon. J. W. ERB.....	July 27, 1956	Nov. 21, 1961
Minister of Highways and Transportation...	Hon. C. G. WILLIS.....	Aug. 31, 1956	Aug. 1, 1960
Minister of Social Welfare and Rehabilitation.	Hon. A. M. NICHOLSON.....	July 11, 1960	July 11, 1960
Minister of Education.....	Hon. O. A. TURNBULL.....	July 11, 1960	Nov. 7, 1961
Minister of Public Health.....	Hon. W. G. DAVIES.....	Aug. 29, 1960	Nov. 21, 1961
Minister of Municipal Affairs.....	Hon. E. I. WOOD.....	Nov. 21, 1961	Nov. 21, 1961

Subsection 9.—Alberta

The Government of Alberta is composed of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. There are 65 members in the Legislative Assembly, elected for a maximum period of five years. The Hon. J. Percy Page, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Dec. 19, 1959. Lieutenant-Governors since Confederation (1905) are listed in the 1960 Year Book, p. 116. Premiers since Confederation are listed in the same edition, p. 117.

Each member of the Legislative Assembly (except the Speaker and the Deputy Speaker) receives a sessional indemnity of \$3,000 plus \$1,500 expense allowance plus \$15 for each day during the session when he is necessarily absent from his ordinary place of residence, both tax free. The Speaker's sessional indemnity is \$4,750 plus \$2,250 expense allowance and the Deputy Speaker's sessional indemnity is \$4,000 plus \$2,000 expense allowance. Each also receives \$15 for each day during the session when he is necessarily absent from his ordinary place of residence. The Premier, in addition to the sessional indemnity, receives \$14,000, other Ministers receive \$11,000 and each member of the Opposition receives \$625; there is no Opposition Leader in the present Legislature.

30.—Legislatures of Alberta, 1935-60, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 82, and for 1924-34 in the 1938 edition, p. 117.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 22, 1935	8th.....	9	Feb. 6, 1936	Feb. 16, 1940
Mar. 21, 1940	9th.....	4	Feb. 20, 1941	July 7, 1944
Aug. 8, 1944	10th.....	5	Feb. 22, 1945	July 16, 1948
Aug. 17, 1948	11th.....	5	Feb. 17, 1949	June 28, 1952
Aug. 6, 1952	12th.....	3	Feb. 19, 1953	May 12, 1955
June 29, 1955	13th.....	5	Aug. 17, 1955	May 9, 1959
June 18, 1959	14th.....	1	Feb. 11, 1960	1

¹ Life of Legislature not expired at Jan. 31, 1962.

31.—Eighth Ministry of Alberta, as at Jan. 31, 1962

(Party standing at latest General Election, June 18, 1959: 61 Social Credit, 1 Liberal, 1 Progressive Conservative, 1 Coalition and 1 Independent Social Credit.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and President of Council, Minister of Mines and Minerals and Attorney General	HON. ERNEST C. MANNING.....	Sept. 3, 1935	May 31, 1943 Sept. 16, 1952 Aug. 2, 1955
Minister of Municipal Affairs.....	HON. ALFRED J. HOOKE.....	Apr. 20, 1945	Aug. 2, 1955
Minister of Highways.....	HON. GORDON E. TAYLOR.....	Dec. 27, 1950	May 1, 1951
Minister of Education.....	HON. ANDERS O. AALBORG.....	Sept. 9, 1952	Sept. 9, 1952
Minister of Agriculture.....	HON. LEONARD C. HALMRAST.....	Jan. 3, 1953	Jan. 5, 1954
Minister of Lands and Forests.....	HON. NORMAN A. WILLMORE.....	Nov. 10, 1953	Aug. 2, 1955
Minister of Public Welfare.....	HON. ROBIN D. JORGENSEN.....	Jan. 5, 1954	Jan. 5, 1954
Provincial Treasurer.....	HON. EDGAR W. HINMAN.....	Dec. 23, 1954	Aug. 2, 1955
Minister of Public Works.....	HON. JAMES HARTLEY.....	Aug. 2, 1955	Aug. 2, 1955
Minister without Portfolio.....	HON. FRED. C. COLBORNE.....	Aug. 2, 1955	Aug. 2, 1955
Minister of Industry and Development and Provincial Secretary.....	HON. A. RUSSELL PATRICK.....	Aug. 2, 1955	Sept. 1, 1959
Minister of Labour and Minister of Telephones.....	HON. RAYMOND RIERSON.....	Aug. 2, 1955	Sept. 22, 1959
Minister of Health.....	HON. DR. J. DONOVAN ROSS.....	Sept. 18, 1957	Sept. 18, 1957

Subsection 10.—British Columbia

The Government of British Columbia has a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Maj.-Gen. the Hon. George Randolph Pearkes, Lieutenant-Governor at Jan. 31, 1962, was commissioned to office Oct. 13, 1960. Lieutenant-Governors from Confederation (1871) to 1959 are cited in the 1960 Year Book, p. 118.

The Legislative Assembly, elected for a statutory term of five years, has 52 members. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 118.

Each member of the Executive Council and the Legislative Assembly receives a sessional allowance of \$3,400 and \$1,000 for expenses. There is also paid to each member a living allowance of \$15 for each day's attendance at the session and for each Saturday, Sunday or holiday that intervenes between two sittings of the House; the allowance of \$15 in any session is not paid in respect of more than 40 days. Each member also receives an allowance of 25 cents per mile of the distance between his place of residence and the city of Victoria, reckoning such distance, going and coming, according to the nearest mail route. In addition, the Premier receives a salary of \$15,000 and each member of the Executive Council \$12,500. The Leader of the Opposition has a special allowance of \$3,500 for expenses, the Speaker receives a special allowance of \$3,500 and the Deputy Speaker an allowance of \$1,000.

32.—Legislatures of British Columbia, 1937-61, as at Jan. 31, 1962

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 83, and for 1924-37 in the 1938 edition, p. 118.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 1, 1937	19th.....	5	Oct. 26, 1937	July 22, 1941
Oct. 21, 1941	20th.....	4	Dec. 4, 1941	Aug. 31, 1945
Oct. 25, 1945	21st.....	5	Feb. 21, 1946	Apr. 16, 1949
June 15, 1949	22nd.....	4	Feb. 14, 1950	Apr. 10, 1952
June 12, 1952	23rd.....	1	Feb. 3, 1953	Mar. 27, 1953
June 9, 1953	24th.....	4	Sept. 15, 1953	Aug. 13, 1956
Sept. 19, 1956	25th.....	4	Feb. 7, 1957	Aug. 3, 1960
Sept. 12, 1960	26th.....	1	Jan. 26, 1961	1

¹ Life of Legislature not expired at Jan. 31, 1962.

33.—Twenty-Sixth Ministry of British Columbia, as at Jan. 31, 1962

(Party standing at latest General Election, Sept. 12, 1960: 32 Social Credit, 16 Co-operative Commonwealth Federation, and 4 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council and Minister of Finance.....	Hon. WILLIAM ANDREW CECIL BENNETT.....	Aug. 1, 1952	{Aug. 1, 1952 Aug. 1, 1952 Feb. 15, 1954 Aug. 1, 1952 Aug. 1, 1952 Mar. 20, 1959
Provincial Secretary, Minister of Municipal Affairs, and Minister of Social Welfare.....	Hon. WESLEY DREWETT BLACK...	Aug. 1, 1952	{Aug. 1, 1952 Aug. 1, 1952 Mar. 20, 1959
Attorney-General and Minister of Industrial Development, Trade, and Commerce....	Hon. ROBERT WILLIAM BONNER...	Aug. 1, 1952	Mar. 28, 1957
Minister of Lands and Forests.....	Hon. RAY GILLIS WILLISTON.....	Apr. 14, 1954	Feb. 28, 1956
Minister of Agriculture.....	Hon. FRANCIS XAVIER RICHTER...	Nov. 28, 1960	Nov. 28, 1960
Minister of Mines and Petroleum Resources...	Hon. WILLIAM KENNETH KIERNAN	Aug. 1, 1952	Mar. 18, 1960
Minister of Highways.....	Hon. PHILIP ARTHUR GAGLIARDI...	Aug. 1, 1952	Mar. 15, 1955
Minister of Labour and Minister of Education	Hon. LESLIE RAYMOND PETERSON...	Sept. 27, 1956	Nov. 28, 1960
Minister of Health Services and Hospital Insurance.....	Hon. ERIC CHARLES FITZGERALD MARTIN.....	Aug. 1, 1952	Mar. 20, 1959
Minister of Public Works.....	Hon. WILLIAM NEELANDS CHANT...	Mar. 15, 1955	Mar. 15, 1955
Minister of Recreation and Conservation and Minister of Commercial Transport.....	Hon. EARLE CATHERS WESTWOOD...	Sept. 27, 1956	Nov. 28, 1960
Member of Executive Council without Portfolio.....	Hon. BUDA HOSMER BROWN....	Nov. 28, 1960	Nov. 28, 1960

Subsection 11.—Yukon and Northwest Territories

Yukon Territory.—The Yukon was created a separate Territory in June 1898. Provision is made for a local government administered by a Commissioner appointed by the Governor in Council. There is an elected Council of seven members (1961). The Commissioner administers the Government under instructions from the Governor in Council or the Minister of Northern Affairs and National Resources. The Commissioner in Council has power to make ordinances dealing with the imposition of local taxes, sale of liquor, preservation of game, establishment of territorial offices, maintenance of municipal institutions, issue of licences, incorporation of companies, solemnization of marriage, property and civil rights, and generally all matters of a local nature in the Territory. The seat of local government is Whitehorse, Yukon Territory.

GOVERNMENT OF THE YUKON TERRITORY

(as at Jan. 31, 1962)

(At Jan. 31, 1962 the Government consisted of an appointed Commissioner and a Council of seven members elected in 1961 for a three-year term. The Council elects its own Speaker.)

Commissioner...... F. H. COLLINS

Members of Council—

Carmacks-Kluane.....	J. LIVESSEY (Speaker)
Dawson.....	G. O. SHAW
Mayo.....	R. L. MCKAMEY
Watson Lake.....	D. TAYLOR
Whitehorse East.....	HERBERT E. BOYD
Whitehorse North.....	K. MCKINNON
Whitehorse West.....	J. WATT

Officers of Council—

Clerk.....	H. J. TAYLOR
Legal Adviser.....	Vacant

The Northern Administration Branch, Department of Northern Affairs and National Resources, has the responsibility for the general administration of the natural resources of the Yukon Territory, except game. The Department maintains lands and mining offices at three points in the Territory. Other departments and agencies of the Federal

Government, including the Department of Justice, the Royal Canadian Mounted Police, the Departments of National Defence, Citizenship and Immigration, Mines and Technical Surveys, National Revenue, Transport, Post Office, Agriculture, Fisheries, Public Works and the Unemployment Insurance Commission also maintain offices in the Yukon Territory.*

Northwest Territories.—As reconstituted on Sept. 1, 1905, these comprise: (1) all that part of Canada north of the 60th parallel of north latitude, except the portions thereof within the Yukon Territory and the Provinces of Quebec and Newfoundland; and (2) the islands in Hudson Bay, James Bay and Ungava Bay, except those islands within the Provinces of Manitoba, Ontario and Quebec.

The Northwest Territories Act (RSC 1952, c. 331) provides for the appointment of a Commissioner to administer the government of the Territories under instructions given from time to time by the Governor in Council or the Minister of Northern Affairs and National Resources. As a matter of practice, the appointment is held by the Deputy Minister of Northern Affairs and National Resources. The Northwest Territories Act, as amended, also provides for a Council of nine members, four of whom are elected in the Mackenzie District and five of whom are appointed by the Governor in Council. The Commissioner in Council has legislative powers respecting such matters as direct taxation, establishment and tenure of Territorial offices, municipal institutions, controverted elections, licences, incorporation of companies, property and civil rights, administration of justice, game, education, hospitals and generally all matters of a local or private nature. The Council meets once each year in the Territories and at least once each year in Ottawa, which is the seat of government. The resources, except game, remain under the control of the Federal Government. The administration of legislation passed by the Commissioner in Council and the management of resources under federal legislation are conducted by the Northern Administration Branch of the Department of Northern Affairs and National Resources. Administrative offices are located at a number of centres in the Territories including Fort Smith, Yellowknife, Hay River, Inuvik and Frobisher Bay.

COUNCIL OF THE NORTHWEST TERRITORIES

(as at Jan. 31, 1962)

Commissioner	R. G. ROBERTSON
Deputy Commissioner	W. G. BROWN
Members of the Council—	
Appointed.....	W. G. BROWN, D. M. COOLICAN, L. A. DESROCHERS, H. M. JONES and I. NORMAN SMITH
Elected.....	A. P. CAREY, E. J. GALL, J. W. GOODALL and K. H. LANG
Officers of the Council—	
Secretary.....	G. A. MACKINNON
Legal Adviser.....	E. R. OLSON

Section 3.—Municipal Government†

The British North America Act of 1867 placed municipal government in Canada under the control of the provincial legislatures. The powers and responsibilities of municipalities are those delegated to them by statutes passed by their respective provincial legislatures. Some of these statutes apply to all municipalities within a province, some to a certain type or group and many to one municipality only. The types of municipal organization in existence, and the nature of the municipal services provided, vary greatly

* Further information on officials of various Federal Government departments serving Yukon Territory may be obtained from the Director, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

† Prepared in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

from region to region and are adjusted from time to time to meet changing needs and conditions. In very general terms, municipalities have the power to raise revenue locally and to borrow, and have the responsibility of providing local government services.

In addition to the well-known types of organized municipalities—cities, towns, villages, counties, etc.—there are various other forms of local government organization. Certain municipal government bodies encompass a number of municipalities or parts of municipalities. For example, special district authorities (greater water and sewerage districts, drainage and irrigation districts and health units) may provide services to a number of municipalities. Similarly, metropolitan government authorities provide certain services to a number of area municipalities. In some provinces, the more sparsely settled areas do not have organized municipalities. Instead, they are divided into local improvement districts, local government districts or special areas in which the local government services are administered by officials appointed by the provincial Departments of Municipal Affairs.

The major local revenue source available to municipalities is the taxation of real property. It is supplemented in varying degrees by taxation of personal property, business, persons (poll taxes) and tenants. In two provinces municipalities may levy an amusement tax, in four they may impose sales taxes on specific commodities, and in Quebec most cities have been granted the right to levy a general sales tax. Miscellaneous general revenue is derived from licences, permits, rents, concessions, franchises and fines. Most urban municipalities of any size operate utilities for the provision of water and, in many instances, electricity, gas, transportation, telephone and other services. These sometimes provide surplus funds that may become available to help pay for other municipal services. On the other hand, expenditures of municipalities often include provision for the deficits of their utilities and enterprises.

In differing degrees and with varying provincial assistance, municipalities are responsible for the following services: protection to persons and property through police and fire forces, courts and local gaols, and inspection services; roads and streets; sanitation; certain health and welfare services; and some recreation and other community services. In most provinces, municipalities are responsible for levying and collecting local education taxes on property on behalf of the local schools, and often for borrowing capital funds for school construction. Local administrative responsibility for education lies with boards of trustees separate from the councils that govern municipalities (except Alberta; see p. 89).

All provinces give some form of financial assistance to their municipalities. This may be in the form of monetary grants, such as unconditional subsidies which may be spent as the municipalities see fit, or grants in aid of specific services which are the municipal responsibility. The provinces may also make loans to municipalities for capital purposes or guarantee the bonds issued by the municipalities. Other forms of indirect assistance are the resumption by the provincial governments of responsibilities formerly delegated to the municipalities and the extension of municipal taxing privileges into what were formerly considered to be provincial revenue fields. The provinces also provide various technical and consultative services to their municipalities.

The following paragraphs describe municipal organization in each province and the Territories as at Jan. 1, 1961. In Table 34 (which gives the number of each type of municipality in each province) all fully incorporated cities, towns and villages are regarded as 'urban' municipalities.

Newfoundland.—The Province of Newfoundland has two cities—St. John's and Corner Brook. A number of the province's many settlements have been organized into 33 towns, four rural districts, three local improvement districts and 43 local government communities. The towns, rural districts and local improvement districts operate under the Local Government Act; towns and rural districts have elected councils and local improvement districts have appointed trustees. Local government communities established under the Community Councils Act in the smaller settlements have limited powers

and functions. There are no rural municipalities in the usual sense. Only about one-fifth of 1 p.c. of the total area is municipally organized. Municipalities are supervised by the Department of Municipal Affairs and Supply.

Prince Edward Island.—In this island province, one city and seven towns have been incorporated under special Acts and 16 villages have been established under the Village Services Act. There is no municipal organization for the remainder of the province although it is divided into school sections which have elected school boards.

Nova Scotia.—Municipal organization in Nova Scotia covers the whole of the province. The three cities operate under special charters and special legislation. Thirty-nine towns operate under the Town Incorporation Act but there are no municipalities incorporated as villages. Cities and towns are independent of counties. The rural area is divided into 18 counties which, in themselves, do not represent units of local government. However, 12 of these counties each comprise one municipality and the other six each comprise two municipalities, making a total of 24 rural municipalities. Supervision of municipalities is exercised through the Department of Municipal Affairs.

New Brunswick.—This province is divided into 15 counties which are incorporated municipalities and have direct powers of local self-government as rural municipalities, although certain of their powers often apply in both rural and urban municipalities. The six cities have special charters and the 20 towns operate under the Towns Incorporation Act. There is also one village. There are 62 local improvement districts and 12 commissions within the counties but outside the cities, towns and villages; these have been incorporated for the provision of limited municipal services. The Department of Municipal Affairs exercises supervision.

Quebec.—Municipal divisions in Quebec embrace the more thickly settled areas comprising about one-third of the province and the remainder is governed by the province as 'territories'. The organized area is divided into 74 county municipalities which are divided again into local municipalities and designated as village, township or parish municipalities or simply as municipalities. The counties as such have no direct powers of taxation. Funds to finance the services falling within their jurisdiction are provided by the municipalities forming part thereof. Parts of some counties are not yet organized into incorporated units of local government, being in outlying areas and having little or no population. There are 337 villages and 1,116 townships and parishes. A small number of these are independent of the counties in which they are located. The Municipal Code governs local municipalities and the 55 cities and 168 towns have special Acts. The supervision and assistance of municipalities is through the Department of Municipal Affairs and the Quebec Municipal Commission. Municipal statistics are gathered by the Quebec Bureau of Statistics.

The Montreal Metropolitan Corporation was created in 1959 and was granted all the powers and functions of the former Montreal Metropolitan Commission (created in 1921) and certain additional ones. The Corporation is administered by a council of representatives from the City of Montreal and 14 area municipalities. It exercises certain financial authority over these area municipalities, including approval of borrowings, and if any area municipality is unable to meet its obligations the Corporation may levy assessments on the other area municipalities until such time as the aided municipality can fulfil its own obligations. The Corporation may, with a municipality's consent, borrow in its own name on the municipality's behalf but all area municipalities and the City of Montreal are jointly and severally liable for such loans. The Corporation is authorized to undertake and finance the planning of metropolitan roads and in due course it expects to take on more of the functions of an over-all metropolitan administration.

The County of Laval was replaced in March 1959 by the Interurban Corporation of Jesus Island in order to facilitate solution of inter-municipal problems on the island.

Ontario.—Slightly more than one-tenth of the area of Ontario is municipally organized and the remainder is governed entirely by the provincial government. The older settled section of the province is divided into 43 counties, five of which are united with others for administrative purposes. Each county, although it is an incorporated municipality, is comprised of the towns, villages and townships situated within its borders and these provide its revenue. There are 30 cities, 157 towns, 156 villages, 574 townships and 20 improvement districts in the province. Some of each are located in the northern districts which are not organized into counties. Supervisory control of municipalities is exercised by the Department of Municipal Affairs and the Ontario Municipal Board under the Municipal Act and other Acts governing aspects of municipal government.

The Municipality of Metropolitan Toronto encompasses one city, four towns, three villages and five townships. It has been in existence since Jan. 1, 1954. The council is a federation of the 13 area municipalities and the councillors represent those municipalities. The chairman of the council is elected by the councillors and need not be a councillor. The council has jurisdiction over assessments, water works, sewerage works, metropolitan road systems, transit, municipal housing developments, community planning, parks and recreation areas, the Court House and certain health and welfare services. It also controls a unified metropolitan police force and a metropolitan licensing commission. The expenditures are financed by a levy apportioned among the area municipalities. All borrowing of the area municipalities for capital purposes is done by the Municipality of Metropolitan Toronto.

Manitoba.—Manitoba has six cities, which derive their powers from special Acts and do not come under the supervision of the Department of Municipal Affairs. The Department supervises the 35 towns, 37 villages and 112 rural municipalities under the Municipal Act. There are local government districts in settled areas not within municipalities where the province has placed a resident administrator to carry out the functions of a municipal council. The unorganized areas are the direct responsibility of the provincial government.

The Metropolitan Corporation of Greater Winnipeg has been in existence since Nov. 1, 1960. Its council is separate and distinct from those of the 16 area municipalities. The councillors are elected as individuals from ten new districts, each containing approximately the same number of voters. The council has jurisdiction over planning, zoning, land development, assessments, arterial roads, water supply, sewage disposal, transit and other services. It borrows money only for its own undertakings and leaves to its area municipalities the responsibility for welfare, police, fire protection and other services. Its expenditures are financed by a proportion of the business and other taxes levied on industrial or commercial property by the area municipalities and by a uniform levy on the equalized assessment of all taxable real property in the area municipalities.

Saskatchewan.—All municipalities in Saskatchewan derive their powers from general Acts that are designated with the name of the type of municipality. There are 11 cities, 110 towns, 369 villages and 296 rural municipalities. The area so organized consists of most of the southern two-fifths of the province; the remainder of this portion is administered for local purposes by the province in unincorporated local improvement districts. The northern three-fifths is sparsely populated and without local government, although some municipal services are provided by the province through operation of the Northern Administrative Area. Municipalities are supervised by the Department of Municipal Affairs.

Alberta.—The whole province of Alberta is under some type of municipal organization. The province has an Act applying to each type of municipality and under these Acts the Department of Municipal Affairs supervises the 10 cities, 88 towns, 161 villages, 31 municipal districts and 17 counties. The latter administer schools as well as municipal services. Municipal government for the 49 improvement districts and two special areas is provided by the Department of Municipal Affairs.

British Columbia.—Less than one-half of 1 p.c. of the area of British Columbia is organized into municipalities. Additional small areas have sufficient population to require administration of local activities by the provincial government. There are 32 cities, three towns, 58 villages and 30 districts; the latter are chiefly rural municipalities, except for those adjacent to the principal cities of Victoria and Vancouver which are largely urban in character. It should be emphasized, however, that the application of the name 'city' is somewhat different from the commonly accepted meaning, in that several of them have populations of fewer than 1,000 and perhaps one-half or more would not normally be incorporated as cities in another province. Municipalities are supervised by the Department of Municipal Affairs.

Yukon and Northwest Territories.—There are two cities, Whitehorse and Dawson, and one unincorporated town, Mayo, in the Yukon Territory and two municipal districts, Yellowknife and Hay River, in the Northwest Territories, all of which provide some municipal services to their local areas. These are not shown in Table 34.

34.—Official Designation and Statistical Classification of Municipalities, by Province, as at Jan. 1, 1961

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
OFFICIAL DESIGNATION¹											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Local municipalities.....	85	24	66	116 ³	1,677	938	191	786	307	123	4,313
Metropolitan corporations..	...	...	...	...	1	1	1	...	...	...	3
Cities.....	2	1	3	6	55	30	6	11	10	32	166
Towns.....	40 ⁴	7	39	20	163	157	35	110	83	3	667
Villages.....	45 ⁵	16	...	1	337	156	37	369	161	53	1,173
Rural ⁶.....	...	...	24	89 ³	1,116	594 ⁷	112 ⁸	296 ⁹	48 ¹⁰	30 ¹¹	2,309
Quebec and Ontario counties	...	...	...	...	75 ¹²	38	...	...	...	...	113
Totals, Incorporated Municipalities.....	85	24	66	116	1,752	976	191	786	307	123	4,426
STATISTICAL CLASSIFICATION²											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Municipalities in Metropolitan Areas ¹³	2	...	3	5	76	38	15	...	11	19	169
Urban.....	2	...	2	3	60	22	8	...	6	7	110
Rural.....	...	...	1	2	16	16	7	...	5	12	59
Other urban municipalities..	83	24	40	24	501	322	71	490	253	86	1,894
Other rural municipalities..	...	...	23	87	1,100	578	105	296	43	18	2,250
Semi-urban.....	...	...	...	...	...	55 ¹⁴	...	...	...	...	55
Other.....	...	...	23	87	1,100	523	105	296	43	18	2,195
Quebec and Ontario counties	...	...	...	...	75	38	...	...	...	...	113
Totals, Incorporated Municipalities.....	85	24	66	116	1,752	976	191	786	307	123	4,426

¹ Municipalities grouped according to their official nomenclature, which is roughly indicative of size and nature (see footnote 6).

² Municipalities grouped under the classification devised by the Dominion-Provincial Conferences on Municipal Statistics, designed to bring municipalities into comparable groups for statistical presentation.

³ Includes 62 local improvement districts and 12 commissions.

⁴ Designated by the province as towns (33), rural districts (4) and local improvement districts (3); all operate under the same Act.

⁵ Classified by the province as 'community councils'.

⁶ Rural municipalities are designated by different names in different provinces.

⁷ Includes 20 improvement districts.

⁸ Includes 3 units of self-government known as 'suburban municipalities'; excludes the unincorporated local government districts.

⁹ Excludes the 12 unincorporated local improvement districts.

¹⁰ Includes 17 county municipalities; excludes the 49 unincorporated improvement districts and 2 special areas.

¹¹ Excludes the 2 unincorporated local districts.

¹² Includes the Interurban Corporation of Ile Jésus.

¹³ Includes municipalities shown wholly or partly in metropolitan areas by the 1956 Census, with revisions to date to take care of annexations, etc. Included in urban are the Montreal Metropolitan Corporation, the Municipality of Metropolitan Toronto and the Metropolitan Corporation of Greater Winnipeg.

¹⁴ Classified by provincial authorities as suburban and semi-urban.

Section 4.—Federal and Provincial Royal Commissions

Federal Royal Commissions Established.—Royal Commissions established from Jan. 1, 1961 to Jan. 31, 1962 under Part I of the Federal Inquiries Act are given here in continuation of those previously reported in the Year Books beginning with the 1940 edition, pp. 1108-1110. Any Commissions established between Jan. 31, 1962 and the date of going to press will be found in an Appendix to this volume.

<i>Nature of Commission</i>	<i>Chief Commissioner</i>	<i>Date Established</i>
To inquire into and report upon the existing facilities and the future need for health services for the people of Canada and the resources to provide such services.	Hon. EMMETT M. HALL....	June 20, 1961
To inquire into and report upon the suitability of the scope, basic principles and provisions of the Unemployment Insurance Act and the regulations thereunder and the manner of operating thereunder.	ERNEST C. GILL.....	July 17, 1961
To inquire into and report upon the structure and methods of operation of the Canadian financial system.	The Hon. Mr. Chief Justice DANA HARRIS PORTER..	Oct. 18, 1961

Reports of Federal Royal Commissions.—Reports of federal Royal Commissions issued during the year 1961 were as follows.

Royal Commission on Transportation, established June 8, 1959: Vol. 1, March 1961. Ottawa 1961. 93p. \$1.25. (Cat. No. Z1-1959/3-1).

Royal Commission on Government Organization, established Sept. 16, 1960: first report on progress, April 1961. Ottawa 1961. 20p. 35 cents. (Cat. No. Z1-1960/4-1).

Royal Commission on the Automotive Industry, established Aug. 2, 1960: Ottawa, April 1961. 110 p. \$2. (Cat. No. Z1-1960/1).

Royal Commission on Publications, established Sept. 16, 1960: Ottawa, May 1961. 263p. \$3. (Cat. No. Z1-1960/2).

Provincial Royal Commissions.—The following provincial Royal Commissions were established during the year 1961.

<i>Province and Nature of Commission</i>	<i>Chief Commissioner or Chairman</i>	<i>Date Established</i>
NEWFOUNDLAND		
To inquire into the trucking industry.....	ARTHUR JOHNSON.....	Sept. 12, 1961
PRINCE EDWARD ISLAND		
To inquire into electoral reform.....	His Hon. Judge J. S. DesROCHES....	Jan. 10, 1961
NOVA SCOTIA		
On hydro-electric power development, Gold River, County of Lunenburg.	RUSSELL McINNES.....	June 9, 1961
NEW BRUNSWICK		
To inquire into problems existing in the field of higher education in New Brunswick.	JOHN L. DEUTSCH.....	May 9, 1961
QUEBEC		
To make an inquiry upon the general administration of l'Hôpital Jean Talon.	His Hon. Judge VICTOR CHABOT....	Nov. 8, 1961
To make an inquiry upon the general administration of La Corporation de l'Hôpital Général Fleury.	His Hon. JEAN TELLIER.....	Nov. 8, 1961
To make an inquiry upon the general administration of l'Hôpital St-Michel.	His Hon. JEAN TELLIER.....	Nov. 8, 1961

Provincial Royal Commissions.—concluded

<i>Province and Nature of Commission</i>	<i>Commissioner or Chairman</i>	<i>Date Established</i>
ONTARIO		
To inquire into and report upon the relations between labour and management in the construction industry in Ontario.	H. CARL GOLDENBERG.....	June 27, 1961
To inquire into and report upon the administration of certain public affairs in the Province of Ontario.	HON. WILFRID D. ROACH.....	Dec. 11, 1961
MANITOBA		
*To inquire into and report upon all matters in any way contributing to, or resulting from, or connected with the strike of the plant employees of Brandon Packers Limited at Brandon, Man., and to investigate and make recommendations arising from the foregoing inquiry upon the methods by which peaceful industrial relations may be enhanced in Manitoba.	The Hon. Mr. Justice GEORGE E. TRITSCHLER.	June 29, 1960
BRITISH COLUMBIA		
*To review evidence submitted to the late Hon. Gordon McG. Sloan, Forest Advisor <i>re</i> tree farm licences.	His Hon. CHARLES WILLIAM MORROW	Jan. 21, 1960
*To inquire into, assess and report upon the operation of the Department of Commercial Transport Act and other ancillary legislation enacted in 1959.	Dr. HENRY FORBES ANGUS.....	Feb. 8, 1960
To inquire into the need, if any, for a revision of the expropriation statutes of the province and matters related thereto.	HON. JOHN VALENTINE CLINE.....	Jan. 27, 1961
To inquire into the provisions for conservation of fish in relation to the operation of the British Columbia Power Commission's power plant on the Puntledge River.	Dr. HENRY FORBES ANGUS.....	Dec. 19, 1961

PART III.—ADMINISTRATIVE FUNCTIONS OF THE
FEDERAL GOVERNMENT†

A special article presenting information on the administration and control of the financial affairs of the Federal Government appears in the 1956 Year Book at pp. 101-107.

Section 1.—Departments, Boards, Commissions, etc.

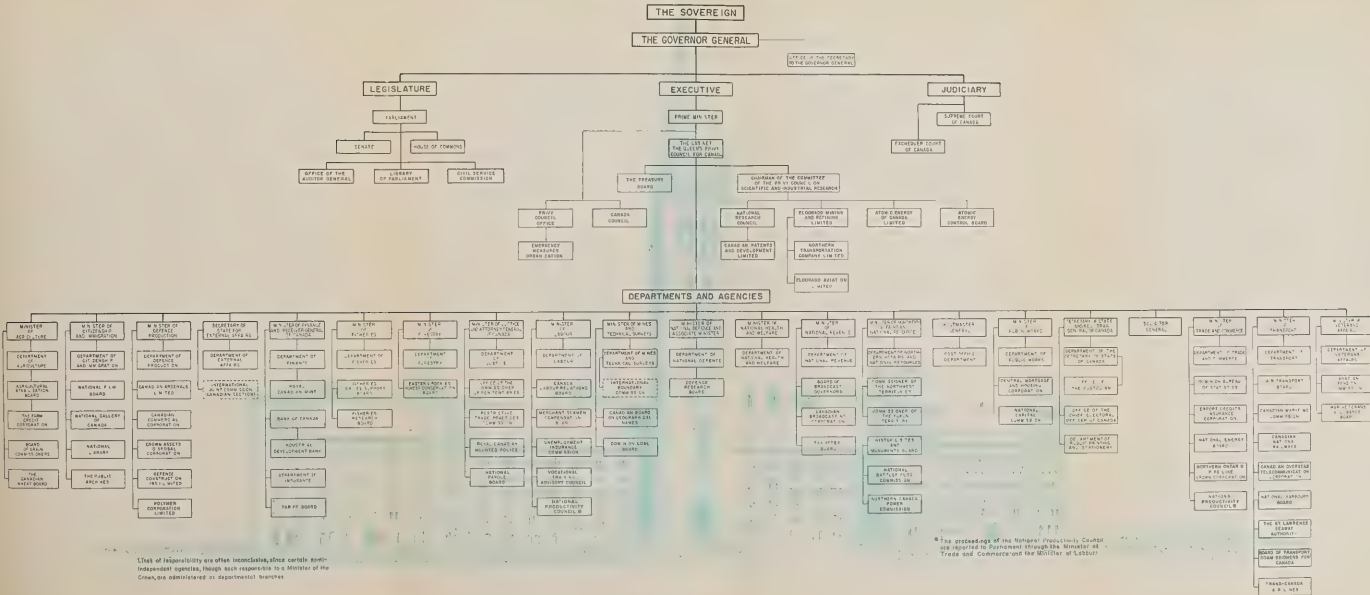
The following paragraphs indicate the functions of the various departments of government and the special boards and commissions in connection with the work of government.

Though it is not possible, owing to the limitations of space, to enumerate in this Section the details of each service or the divisions or sections of all departments, the main branches are given along with those services that differ in some quality from the larger class of subjects handled by a department. The work of many of these departments and boards is given in detail in later Chapters of this volume. The Index will be useful in locating required information.

*This Royal Commission was appointed in 1960 but was omitted from the list for that year published in the 1961 Canada Year Book.

† As at Jan. 31, 1962; any major changes taking place between that date and the time of going to press will be carried in an Appendix to this volume.

THE GOVERNMENT OF CANADA



Department of Agriculture.—This Department was established in 1867 (SC 1868, c. 53) and undertakes work on all phases of agriculture. Research and experimentation are carried out by the Research Branch; the maintenance of standards and protection of products by the Production and Marketing Branch; reclamation and development by the Prairie Farm Rehabilitation Administration and the Maritime Marshland Rehabilitation Administration; security and price stability policies are administered under the Prairie Farm Assistance Administration and the Agricultural Stabilization Board. The Farm Credit Corporation, the Canadian Wheat Board and the Board of Grain Commissioners are responsible to Parliament through the Minister of Agriculture.

Air Transport Board.—The Air Transport Board was established in 1944 by amendment of the Aeronautics Act. The Board is responsible for the economic regulation of commercial air services in Canada and for advising the Minister in the exercise of his duties and powers under the Act in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad, and to foreign air services operating into Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. The Board reports to Parliament through the Minister of Transport.

Auditor General's Office.—This Office originated in 1878 (SC 1878, c. 7) and currently functions under the Financial Administration Act (RSC 1952, c. 116). The Auditor General is responsible for examining accounts relating to the Consolidated Revenue Fund and to public property, and for reporting annually to the House of Commons the results of his examinations. He also audits the accounts of various Crown corporations and other instrumentalities.

Board of Broadcast Governors.—This Board was established pursuant to the Broadcasting Act assented to on Sept. 6, 1958 and is responsible for the regulation of radio and television broadcasting in Canada. This regulatory function includes the establishment and operation of networks of broadcasting stations, the activities of public and private broadcasting stations in Canada and the relationship between them. Applications for licences to establish new broadcasting stations and for changes in conditions of existing licences or changes in the ownership or share structure of licensees are referred to the Board by the Department of Transport for a recommendation to the Minister of Transport. The Board consists of three full-time members and twelve part-time members and reports to Parliament through the Minister of National Revenue.

Board of Grain Commissioners.—Constituted in 1912 under the Canada Grain Act, now the Canada Grain Act, 1930 (RSC 1952, c. 25), the Board of Grain Commissioners provides general supervision over grain handling in Canada by licensing elevator operators, inspecting and weighing grain en route to and shipped from terminal elevators, and other services. The Board, comprising a Chief Commissioner and two Commissioners, has authority to inquire into any matter relating to the grading and weighing of grain, deductions for dockage or shrinkage, deterioration of any grain during storage or treatment, unfair or discriminatory operation of a grain elevator, etc. The Board publishes its regulations in the *Canada Gazette* and reports to Parliament through the Minister of Agriculture.

Board of Transport Commissioners.—The powers of this Board, which was organized as the Board of Railway Commissioners in 1904, have been extended from time to time until today it has regulatory and judicial functions dealing with almost all aspects of railway activity including location, construction and operation of lines, rates and charges. It is also entrusted with the regulation of other transportation and communication agencies, including express companies, telegraph companies, telephone companies other than those provincially or municipally controlled, international bridges and tunnels and inland shipping. The Board reports to Parliament through the Minister of Transport.

Canadian Government Specifications Board.—This is an interdepartmental body composed of the Deputy Heads of 24 Federal Government departments and agencies. The Board operates under the auspices of the National Research Council through the medium of committees in which government and industry co-operate on a voluntary basis. The Board prepares specifications in commodity fields and for materials, processes and equipment required by government agencies, and arranges for necessary testing and research. An Index of Specifications is available on request to the CGSB Secretary, National Research Council, Ottawa.

Canadian Pension Commission.—This Commission, established in 1933 by amendments to the Pension Act (RSC 1952, c. 207), replaced the Board of Pension Commissioners, the first organization created to deal solely with war pensions for service in Canada's Armed Forces. The Commission's main function is the administration of the Pensions Act under which it adjudicates upon all claims for pension in respect to disability or death arising out of service in Canada's Armed Forces. It consists of eight to twelve Commissioners and up to five *ad hoc* Commissioners appointed by the Governor in Council. Its chairman has the rank and powers of a deputy head of a department and the Commission reports to Parliament through the Minister of Veterans Affairs.

Chief Electoral Office.—This Office was established in 1920 under the provisions of the Dominion Elections Act, now the Canada Elections Act (RSC 1960, c. 39, and amendments thereto), and is responsible for the conduct of all federal elections as well as the elections of members of the Northwest Territories Council and of the Yukon Territory Council. In addition, it conducts any vote taken under the Canada Temperance Act. The Chief Electoral Officer reports to Parliament through the Secretary of State.

Department of Citizenship and Immigration.—This Department was constituted in December 1949 (RSC 1952, c. 67) and came into existence on Jan. 18, 1950 under the Minister of Citizenship and Immigration. Most departmental work is carried on through four branches. The Canadian Citizenship Branch assists governmental and non-governmental agencies engaged or interested in facilitating the adjustment and integration of newcomers and in making Canadians conscious of their privileges and responsibilities as citizens. The Canadian Citizenship Registration Branch administers the Canadian Citizenship Act and is the custodian of all records under that Act and all Naturalization Acts previously in force. The Immigration Branch administers the Immigration Act and Regulations and is responsible for the selection, examination and movement of immigrants, the exclusion or deportation of undesirables and the settlement or establishment of immigrants in Canada. The activities of the Indian Affairs Branch include management of all Indian affairs. Its organization consists of a headquarters office at Ottawa, a regional supervisory staff, and 89 local agencies in the field.

The Minister of Citizenship and Immigration is responsible to Parliament for the National Film Board, the National Library, the Public Archives and the National Gallery of Canada.

Civil Service Commission.—The Civil Service Commission of Canada dates from the Civil Service Act of 1908. Under this Act the Commission was given the responsibility of applying, wherever possible, the principle of appointment by merit in filling permanent positions within departmental headquarters at Ottawa, termed the "inside service". The Civil Service Act of 1918 extended the competitive system of appointments to cover the outside as well as the inside service and temporary as well as permanent appointments. It also gave the Civil Service Commission various other responsibilities in the field of personnel administration including responsibility for promotion, for classification of positions and for recommending rates of pay.

The Civil Service Act of 1961, which came into force on Apr. 1, 1962, has three main features. First, it preserves the independence of the Civil Service Commission and carries forward and strengthens all the fundamental principles of the merit system. Secondly, it clarifies the role of the Civil Service Commission in those other areas of personnel administration with which it is concerned but which do not bear directly upon the merit system. Thirdly, it confers on staff associations the right to be consulted on matters which have to do with remuneration and conditions of employment.

The Act applies to about 130,000 employees in all the departments and certain agencies of government and this constitutes the "civil service" within the legal meaning of that term. The "public service" is defined as those departments and agencies which are listed in Schedule A of the Public Service Superannuation Act and which embrace about 180,000 employees including the 130,000 under the Civil Service Act. This definition of public service does not include certain Crown corporations.

The Civil Service Commission, which is responsible only to Parliament and not to the executive government, consists of three members, one of whom is chairman. Each member of the Commission is appointed by the Governor in Council for a term of ten years and has the rank and standing of a deputy minister. The Commission has a staff of over 700 persons located in its headquarters at Ottawa and in its field offices at St. John's, Nfld., Halifax, N.S., Moncton, N.B., Saint John, N.B., Quebec, Que., Montreal, Que., Toronto, Ont., London, Ont., Winnipeg, Man., Regina, Sask., Saskatoon, Sask., Edmonton, Alta., Calgary, Alta., Vancouver, B.C., and Victoria, B.C.

Department of Defence Production.—This Department was established on Apr. 1, 1951 under the provisions of the Defence Production Act (RSC 1952, c. 62, as amended). Under this Act the Minister is given, with certain exceptions, authority to buy defence supplies and construct defence projects required by the Department of National Defence. The Minister may, if authorized by the Governor General in Council, undertake for an associated government anything he may undertake for the Canadian Government. In addition, all powers, duties and functions that therefore were vested in the Minister of Trade and Commerce under any contract, agreement, lease or other writing entered into pursuant to the Department of Munitions and Supply Act, 1939, or the Defence Supplies Act, 1950, are vested in the Minister of Defence Production.

Broadly, the Department's functions are to procure military goods, to construct defence installations and to organize industry for defence as required on behalf of the Department of National Defence, other government departments, and associated governments; to promote the expansion of defence production facilities and the development of defence-supporting industries, particularly of strategic resources important for the defence of Canada and its allies; and to ensure adequate supplies of essential materials and services for defence requirements. The main procurement units of the Department are five production branches—Aircraft, Armament, Electronics, Machine Tool and Shipbuilding—and a General Purchasing Branch. Major offices for foreign procurement

are located at London, England, and Washington, U.S.A.; the General Purchasing Branch has 14 district purchasing offices located throughout Canada for local or urgent procurement. In addition, there are various service branches which include Administration, Comptroller's, Economics and Statistics, Financial Adviser's, Industrial Security, Legal, and Secretary's. The Emergency Supply Planning Branch is responsible for planning economic controls for a national emergency.

The following Crown companies report to Parliament through the Minister of Defence Production: Canadian Arsenals Limited, Canadian Commercial Corporation, Crown Assets Disposal Corporation, Defence Construction (1951) Limited, and Polymer Corporation Limited.

Dominion Bureau of Statistics.—The Dominion Bureau of Statistics was set up by statute in 1918 as a central statistical department for Canada (SC 1918, c. 43). In 1948 this statute, which had been consolidated as the Statistics Act (RSC 1927, c. 190), was repealed and replaced by the Statistics Act (RSC 1952, c. 257); it was amended by SC 1952-53, c. 18, assented to Mar. 31, 1953.

The function of the Dominion Bureau of Statistics is to compile, analyse and publish statistical information relative to the commercial, industrial, financial, social and general condition of the people and to conduct a census of population and agriculture of Canada as required under the Act.

The Bureau is a major publication agency of the Federal Government; the subjects of its reports cover all aspects of the national economy. The administrative head of the Bureau is the Dominion Statistician who reports to Parliament through the Minister of Trade and Commerce.

Emergency Measures Organization.—This Organization is a section of the Privy Council Office, established in June 1957 for the purpose of co-ordinating civil emergency planning. On Sept. 1, 1959, the Departments of National Defence, Health and Welfare, and Justice became responsible for specific civil defence functions and the Emergency Measures Organization for all other aspects of planning civil emergency measures. The Organization is responsible, through the Secretary of the Cabinet, to the Prime Minister.

Department of External Affairs.—This Department was established in 1909 by "An Act to create a Department of External Affairs" (RSC 1952, c. 68). Its main function is the protection and advancement of Canadian interests abroad. The Minister responsible for the Department is the Secretary of State for External Affairs. The senior permanent officer (Deputy Minister) of the Department, the Under-Secretary of State for External Affairs, is assisted by a Deputy Under-Secretary who is also Legal Adviser and by four Assistant Under-Secretaries and is advised by the officers in charge of the various divisions. The divisional heads are each responsible for a part of the work of the Department and they are assisted by Foreign Service Officers, administrative officers and an administrative staff. Officers serving abroad are formally designated as High Commissioners, Ambassadors, Ministers, Counsellors, First Secretaries, Second Secretaries, Third Secretaries and Attachés at diplomatic posts and Consuls General, Consuls and Vice-Consuls at consular posts. There are 66 diplomatic, consular and other missions maintained abroad by the Department. In 13 additional countries, Canada is represented by non-resident Ambassadors or High Commissioners.

The work of the Department at Ottawa is performed by 23 units, comprising 21 divisions and two sections. The divisions may be grouped into three categories—area, functional and administrative. There are six area divisions—African and Middle Eastern, Commonwealth, European, Far Eastern, Latin American and United States; eleven functional divisions—Communications, Consular, Defence Liaison (1), Defence Liaison (2), Disarmament, Economic, Historical, Information, Legal, Protocol and United Nations; and four administrative divisions—Administrative Services, Finance, Personnel, and Supplies and Properties. The two sections are Inspection Service and Liaison Services.

The International Joint Commission reports to the Secretary of State for External Affairs of Canada as well as to the Secretary of State of the United States.

Department of Finance.—This Department was created by Act of Parliament in 1869 and now operates under the Financial Administration Act (RSC 1952, c. 116). The Department is responsible for the financial administration of Canada including the raising of money required for the various governmental activities by way of taxation or borrowing. The Comptroller of the Treasury, an officer of the Department, is responsible for all government disbursements. The work of the Department is organized in six principal divisions: Administration, Economic and International Affairs, Federal-Provincial Relations, Farm Improvement Loans, Taxation, and Treasury Board. The Royal Canadian Mint is a branch of the Department and the Inspector General of Banks is an officer of the Department.

The Tariff Board is responsible to Parliament through the Minister of Finance.

Department of Fisheries.—The Department of Fisheries was first organized under a Minister of Fisheries in 1930. Prior to that date the federal fisheries services were maintained by the former Department of Marine and Fisheries, established in 1868. The provinces, under various arrangements, have certain administrative responsibilities in the fisheries but the legislative authority for the regulations of coastal and freshwater fisheries is with the federal Department of Fisheries.

The work of the Department includes: conservation and development of the fisheries through the enforcement of fishing regulations, the operation of fish culture establishments, management and improvement of spawning streams and control of predators; inspection of fish products for quality control and the encouragement of industrial development; promotion of the greatest utilization of fishery products and a proper public understanding of the resource and the industry. The Department administers the Fishermen's Indemnity Plan to assist fishermen in the event of loss or serious damage to their fishing vessels or lobster traps.

Agencies connected with the Department are the Fisheries Prices Support Board and the Fisheries Research Board of Canada. The Department is represented on the following international commissions: Pacific Salmon Fisheries, Pacific Halibut, the Northwest Atlantic Fisheries, North Pacific Fisheries, Whaling, Great Lakes Fishery, and North Pacific Fur Seal.

Fisheries Research Board.—The Fisheries Research Board operates under the Fisheries Research Board Act of 1937 (amended in 1947 and 1952-53). It has been active as a fisheries research body since 1898, first as the Board of Management of the Canadian Marine Biological Station and later (1912) as the Biological Board of Canada.

The Board operates under the Minister of Fisheries and membership consists of a full-time chairman and not more than 18 other members. The majority of Board members are scientists, and other members are representative of the fishing industry and the Department of Fisheries.

The Board operates four biological stations and an Arctic Unit across Canada, also three technological stations with two technological application units and two oceanographic groups. It serves as the scientific arm of the Department of Fisheries and its principal objective is to increase the scope and value of Canadian fisheries through scientific research.

Department of Forestry.—The Department of Forestry was established in October 1960. It brings together the former Forestry Branch of the Department of Northern Affairs and National Resources and the Forest Biology Division of the Research Branch of the Department of Agriculture. The Department conducts comprehensive programs of research relating to forestry and the utilization of forest products, and carries out economic studies relating to forest resources and the forest industries. It provides information regarding forestry and the forest industries and promotes public interest in the proper management, protection and use of the forest resources. Financial assistance is offered to the provinces under agreements authorized by the Governor in Council in order to expedite progress in specific forestry programs. It carries out forest surveys and provides technical advice and assistance to other agencies of the Federal Government which are responsible for the administration of forest lands. The Department co-operates with international organizations concerned with forestry and in which Canada maintains membership, and the Minister of Forestry reports to Parliament for the Eastern Rockies Forest Conservation Board.

Department of Insurance.—The Minister of Finance is responsible for the Department of Insurance which originated in 1875 as a branch of the Department of Finance but was constituted a separate Department in 1910. It is authorized and governed by the Department of Insurance Act (RSC 1952, c. 70). Under the Superintendent of Insurance, the Department administers the statutes of Canada applicable to: insurance, loan and trust companies incorporated by the Parliament of Canada; provincially incorporated insurance companies registered with the Department; British and foreign insurance companies operating in Canada; small loans companies and money-lenders; co-operative credit societies registered under the Co-operative Credit Associations Act; and Civil Service insurance.

Under the relevant provincial statutes the Department examines provincial trust companies in the Provinces of Manitoba and New Brunswick and loan and trust companies in the Province of Nova Scotia.

International Joint Commission.—This Commission was established under a Britain-United States treaty signed Jan. 11, 1909 and ratified by Canada in 1911. The Commission, composed of six members (three appointed by the President of the United States and three by the Government of Canada) is governed by five specific Articles of the Boundary Waters Treaty of 1909. The Commission's approval is required for any use, obstruction or diversion of boundary waters affecting the natural level or flow of boundary waters in the other country; and for any works in waters flowing from boundary waters or below the boundary in rivers flowing across the boundary which raise the natural level of waters on the other side of the boundary.

Problems arising along the common frontier are also referred to the Commission by either country for examination and report, such report to contain appropriate conclusions and recommendations. In addition, questions or matters of difference between the two countries may be referred to the Commission for decision, provided both countries consent.

The Commission reports to the Secretary of State for External Affairs of Canada and to the Secretary of State of the United States.

Department of Justice.—This Department, established by SC 1868, c. 39, now operates under authority of the Department of Justice Act (RSC 1952, c. 71). It provides legal services to the Government and various government departments including preparing and settling government legislation, settling instruments issued under the Great Seal of Canada, regulating and

conducting litigation for or against the Crown, superintending the acquisition of property and prosecutions under federal legislation other than the Criminal Code, administering federal statutes dealing with legal matters and providing administrative services for the Supreme Court of Canada and the Exchequer Court. The Department also superintends the penitentiaries and administers the prison system of Canada.

The Commissioner of the Royal Canadian Mounted Police operates under the direction of the Minister of Justice who also reports to Parliament for the National Parole Board.

Department of Labour.—The Department of Labour was established in 1900 by Act of Parliament (SC 1900, c. 24) and now operates under authority of the Department of Labour Act (RSC 1952, c. 72). The Department administers, under the Minister of Labour, legislation dealing with: industrial relations, investigation of disputes, etc.; fair employment practices; the regulation of fair wages and hours of labour; reinstatement in civil employment; female employee equal pay; government annuities; government employee compensation; merchant seamen compensation; technical and vocational training assistance; co-ordination of services for vocational rehabilitation of disabled persons; annual vacations with pay. It promotes joint consultation in industry through labour-management committees; organizes manpower utilization programs, e.g., farm labour; and operates a Women's Bureau. The Department publishes the *Labour Gazette* and other publications, as well as general information on labour-management, employment, manpower and related subjects.

The Canada Labour Relations Board acts on behalf of, and the National Technical and Vocational Training Advisory Council and the National Advisory Council on the Rehabilitation of Disabled Persons act in an advisory capacity to the Minister of Labour, and the Merchant Seamen Compensation Board reports to the Minister of Labour. The Department is the official liaison agency between the Canadian Government and the International Labour Organization. The Unemployment Insurance Commission, which maintains the National Employment Service, reports to Parliament through the Minister of Labour.

Library of Parliament.—The Library of Parliament as such was established in 1871 (SC 1871, c. 21) although it existed earlier. It currently functions under RSC 1952, c. 166 and SC 1955, c. 35. The Library of Parliament keeps all books, maps and other articles that are in the joint possession of the Senate and the House of Commons. The Parliamentary Librarian is also responsible for the House of Commons Reading Room. Persons entitled to borrow books from the Library of Parliament are the Governor General, Members of the Privy Council, Members of the Senate and the House of Commons, Officers of the two Houses, Justices of the Supreme Court of Canada and the Exchequer Court, and members of the Press Gallery. In addition, books are lent to other libraries and government agencies and reference service is given to scholars. The Parliamentary Librarian has the rank of a Deputy Head of a Department and is responsible for the control and management of the Library under the Speaker of the Senate and the Speaker of the House of Commons assisted by a Joint Committee appointed by the two Houses.

Department of Mines and Technical Surveys.—This Department was created by an Act of Parliament (SC 1949, c. 17) which received Royal Assent on Dec. 10, 1949. Its establishment resulted from the reorganization of certain former departments. A primary function of the Department is to provide technological assistance in the development of Canada's mineral resources through investigations and research in the fields of geology, mineral dressing and metallurgy. The Department establishes the framework of surveys throughout the country that provides control for all surveying and mapping in Canada. It produces the base maps used in the development of Canada's natural resources, conducts all the charting of Canada's coastal and inland waters, and issues official sailing directions and Canadian sea and air navigation charts. The Department is under the Minister of Mines and Technical Surveys and is divided into five branches: the Surveys and Mapping Branch, the Geological Survey of Canada, the Mines Branch, the Dominion Observatories, and the Geographical Branch. The Mineral Resources Division, a unit of head office, gives its whole attention to matters concerned with the economics of mineral resources development.

In 1959 the Department became actively interested in oceanography and made two major moves toward setting its program into motion: (1) the establishment of the Polar Continental Shelf Project to carry out a long-term investigation of the continental shelf lying north and west of the Canadian Arctic Archipelago and of the waters above it, together with the islands of the Archipelago and the straits and sounds between the islands; and (2) the setting up of a \$3,000,000 oceanographic institute in the Bedford Basin near Halifax which will have facilities for study in any phase of the science.

The Department administers the Explosives Act which regulates the manufacture, testing, sale, storage and importation of explosives, and the Emergency Gold Mining Assistance Act which provides cost-aid to the Canadian gold mining industry.

Boards and Commissions are: Canadian Board on Geographical Names; Board of Examiners for Dominion Land Surveyors; the International Boundary Commission; and the Interprovincial Boundary Commissions. The Minister of Mines and Technical Surveys reports to Parliament for the Dominion Coal Board.

Department of National Defence.—The Department of National Defence was established on Jan. 1, 1923 by the Department of National Defence Act, 1922, and was an amalgamation of the Department of Militia and Defence, the Naval Service and the Air Board. The Department and the Canadian Forces (the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force) now operate under the National Defence Act, 1950 (RSC 1952, c. 184).

In 1940 additional Ministers for Naval and Air Services were appointed and the Department was organized under a Minister of National Defence and two additional Ministers so that there was a Minister and staff for each of the Armed Services. Upon demobilization of the wartime Forces the appointment of Ministers of National Defence for Naval Services and Air Services ceased, and the Armed Forces were, in 1946, again administered by the Minister of National Defence without additional Ministers. Under the National Defence Act, the Canadian Forces are being administered solely by the Minister of National Defence and the Associate Minister of National Defence.

The Defence Research Board, created in 1947 to carry out research relating to national defence and to advise the Minister on all relevant matters of a scientific or technical nature, now functions under the National Defence Act. The Chairman of the Board has a status equivalent to that of a Chief of Staff of one of the Canadian Forces.

National Energy Board.—This Board was established under the National Energy Board Act, 1959 for the broad purpose of assuring the best use of energy resources in Canada. The Board, composed of five members, is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipelines, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The Board is also required to study and keep under review all matters relating to energy under the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary and advisable on the subject. The Board reports to Parliament through the Minister of Trade and Commerce.

National Film Board.—The National Film Board, established in 1939, operates under the National Film Act (RSC 1952, c. 185) which provides for a Board of Governors of nine members—a Government Film Commissioner, appointed by the Governor in Council, who is Chairman of the Board, three members from the public service of Canada and five members from outside the public service. The Board reports to Parliament through a designated Minister of the Crown (at present the Minister of Citizenship and Immigration). The Board is responsible for advising the Governor in Council on film activities and is authorized to produce and distribute films in the national interest and, in particular, films “designed to interpret Canada to Canadians and to other nations”.

Department of National Health and Welfare.—This Department was established in October 1944 under authority of the Department of National Health and Welfare Act (RSC 1952, c. 74). It was originally formed as the Department of Health in 1919 and later became part of the Department of Pensions and National Health. That Department was replaced in 1944 by the Department of National Health and Welfare and the Department of Veterans Affairs.

The Department, headed by the Minister of National Health and Welfare, is composed of three branches—Administration, Health, and Welfare—and is administered by two Deputy Ministers.

The Department has charge of all matters relating to the promotion or preservation of the health, social security and social welfare of the people of Canada over which the Federal Parliament has jurisdiction. It administers the Acts listed in Sect. 3, pp. 111-112, and is also responsible for: the administration of the National Health Program under which grants are made available to the provinces for the development and extension of health services; the federal aspects of emergency health and welfare services; health and safety in the peaceful uses of atomic energy and other sources of radiation affecting the population; the provision of health, medical and hospital services to Indians and Eskimos and to other elements of the population in the Yukon and Northwest Territories; the provision of assistance and consultative services to the provinces upon request on blindness control, child and maternal health, mental health, dental health, nursing, medical rehabilitation, nutrition and hospital design; the inspection and medical care of immigrants and seamen and the administration of marine hospitals; the supervision of public health facilities on railway, water and other forms of transportation; the enforcement of regulations of the International Joint Commission relating to public health; the promotion and conservation of the health of civil servants and other government employees; the collection, publication and distribution, subject to the provisions of the Statistics Act, of information relating to public health, improved sanitation and social and industrial conditions affecting the health of Canadians.

National Library.—The National Library came formally into existence on Jan. 1, 1953, with the proclamation of the National Library Act (RSC 1952, c. 330). It publishes *Canadiana*, a monthly catalogue of new publications relating to Canada, with an annual cumulation. The Library also publishes other bibliographies. Its Reference Division maintains the National

Union Catalogue, which embodies the author catalogues of the major libraries in the ten provinces and is thus a key to the book collections of the whole country. Its book collection is growing steadily and at the end of 1961 consisted of about 250,000 volumes. The National Librarian reports to Parliament through the Minister of Citizenship and Immigration.

National Parole Board.—The establishment of the National Parole Board, which was formed in January 1959, is authorized by the Parole Act (SC 1958, c. 38) by which it is given absolute jurisdiction over all matters of parole. It is composed of a chairman and three members appointed by Order in Council for a ten-year period. The Board reports to Parliament through the Minister of Justice.

Department of National Revenue.—From Confederation until May 1918, customs and inland revenue Acts were administered by separate departments; after that date they were amalgamated under one Minister as the Department of Customs and Inland Revenue. In 1921 the name was changed to the Department of Customs and Excise. In April 1924 collection of income taxes was placed under the Minister of Customs and Excise and, under the Department of National Revenue Act, 1927, the Department became known as the Department of National Revenue.

The Customs and Excise Division of the Department is responsible for the assessment and collection of customs and excise duties as well as sales and excise taxes, by ports and outposts. The Taxation Division is responsible for the assessment and collection of income taxes and estate taxes by 29 district offices throughout Canada.

The Minister of National Revenue is responsible to Parliament for the Tax Appeal Board and also reports to Parliament for the Canadian Broadcasting Corporation and the Board of Broadcast Governors.

Department of Northern Affairs and National Resources.—The Department of Northern Affairs and National Resources was established in December 1953, superseding the Department of Resources and Development. In addition to Administration Services, which performs auxiliary functions, the Department is divided into six branches: the National Parks Branch administers the National Parks and National Historic Parks of Canada, National Historic Sites, and wildlife matters coming within the jurisdiction of the Federal Government; the Water Resources Branch is responsible for the investigation of water power resources, for the administration of federal assistance to the provinces under the Canada Water Conservation Assistance Act and for federal interest in certain joint federal-provincial construction projects; the Northern Administration Branch is responsible for the administration of various federal Acts, territorial ordinances and regulations pertaining to the government of the Northwest Territories, for the conduct of certain business arising from the general administration of the Yukon Territory, for the administration of natural resources in those Territories and for Eskimo affairs, as well as for certain other lands and mineral rights vested in the Crown in the right of Canada; the Natural History Branch and Human History Branch of the National Museum of Canada are responsible for research, publication of scientific studies, and public exhibitions in their respective fields of natural history and human history; and the Canadian Government Travel Bureau promotes the tourist industry by encouraging travel to Canada.

The Minister of Northern Affairs and National Resources is also responsible to Parliament for the Northern Canada Power Commission and the National Battlefields Commission. The Historic Sites and Monuments Board of Canada, an honorary body of recognized historians representing the various provinces, and the Advisory Committees on Northern Development and Water Use Policy act in an advisory capacity to the Minister in their respective fields. The Deputy Minister is Commissioner of the Northwest Territories and Chairman of the Northern Canada Power Commission.

Post Office Department.—Administration and operation of the Canada Post Office, by virtue of the Post Office Act (RSC 1952, c. 212) and under the Postmaster General, includes all phases of postal activity, personnel, mail handling, transportation of mails by land, water, rail and air and the direction and control of financial services including the operation of money order and savings bank business.

Public Archives.—The Public Archives was founded in 1872 and is administered under the Public Archives Act (RSC 1952, c. 222) by the Dominion Archivist who has the rank of a Deputy Minister and reports to Parliament through the Minister of Citizenship and Immigration. Its purpose is to assemble and make available to the public a comprehensive collection of historical source material relating to the history of Canada. Major emphasis is placed on official records of the Government and the personal papers of political leaders and other prominent figures. These are supplemented by copies of many records in the British and French archives that relate to Canada, a fine map collection, a historical library, and many prints, paintings and photographs. In 1956 the Archives opened a large Records Centre, designed to provide economical accommodation for departmental records that are used relatively seldom. The building, equipped with over 50 miles of shelving, also serves as a sorting centre in which papers of long-term interest are picked out of obsolete files, and useless material is segregated for destruction.

Under the terms of the Laurier House Act (RSC 1952, c. 163) the Public Archives is responsible for the administration of Laurier House as a museum and study centre. The Dominion Archivist also administers the Government's Central Microfilm Unit, which is housed in the Records Centre.

Department of Public Printing and Stationery.—This Department, established in 1886, is responsible for supplying all requirements of printing and stationery to Parliament and departments of the Canadian Government; the cataloguing, distribution and sale of government publications; the publication of the *Canada Gazette* and all departmental reports, papers, etc., required to be published by authority of the Governor General in Council (RSC 1952, c. 226); and the publication of the Statutes of Canada (RSC 1952, c. 230).

The Department of Public Printing and Stationery is under the jurisdiction of the Secretary of State. The Deputy Head is the Queen's Printer and Controller of Stationery.

Department of Public Works.—This Department was constituted in 1867 and operates under the legislative authority of the Public Works Act and other Acts of Parliament. It is responsible for the management and direction of the public works of Canada and, except as specifically provided in other Acts, attends to the construction and maintenance of public buildings, wharves, piers, roads and bridges and the undertaking of dredging and navigable waters protection work. The Department maintains district offices at key points across the country. The main operating Branches of the Department with headquarters in Ottawa are: Harbours and Rivers Engineering, Building Construction, Development Engineering, Property and Building Management, and Purchasing and Stores. In addition, the Fire Prevention Branch, organized in 1919 and now a part of the Department of Public Works, maintains fire-loss records, makes inspections, reports on fire protection legislation and protection methods and endeavours to extend and co-ordinate fire prevention work in Canada. Federal interests in the Trans-Canada Highway are also handled by the Department.

The Minister of Public Works is responsible to Parliament for the Central Mortgage and Housing Corporation and for the National Capital Commission.

Royal Canadian Mounted Police.—The Royal Canadian Mounted Police, a civil force maintained by the Federal Government, was organized in 1873 as the North West Mounted Police. It now operates under the Royal Canadian Mounted Police Act, 1959 and is responsible for enforcing federal laws throughout Canada. By agreement with certain provincial governments, it is also responsible for enforcing provincial laws within those provinces and for policing many district municipalities, cities and towns. The Force is controlled and administered by the Minister of Justice.

Department of the Secretary of State.—The Secretary of State and Registrar General of Canada is the official medium of communication with the Throne through the Governor General, and is the custodian of the Great Seal of Canada and of the Privy Seal of the Governor General. He is responsible for the preparation and tabling of returns in Parliament. He administers legislation relating to patents of invention, trade marks, industrial designs, timber marking, copyright, companies, boards of trade, the registration of trade unions, public officers, public documents and governmental and parliamentary translations. He is also the Custodian of Enemy Property.

The Secretary of State has certain responsibilities with respect to civilian decorations, precedence and ceremonial. The Committee on the use of Parliament Hill and the National War Memorial falls within his purview. He is the Minister of the Department of Public Printing and Stationery and the spokesman in Cabinet and Parliament for the Civil Service Commission and the Chief Electoral Officer.

The Tariff Board.—Constituted in 1931 under the Tariff Board Act (SC 1931, c. 55), the Board derives its duties and powers from three statutes: the Tariff Board Act (RSC 1952, c. 261, as amended); the Customs Act (RSC 1952, c. 58, as amended); and the Excise Tax Act (RSC 1952, c. 100, as amended).

Under the Tariff Board Act, the Board makes inquiry into and reports upon any matter in relation to goods that, if brought into Canada, are subject to or exempt from duties of customs or excise taxes. Reports of the Board are tabled in Parliament by the Minister of Finance. It is also the duty of the Board to hold an inquiry under Sect. 14 of the Customs Tariff and to inquire into any other matter in relation to the trade and commerce of Canada that the Governor in Council sees fit to refer to the Board for inquiry and report.

Under the provisions of the Customs Act and the Excise Tax Act, the Tariff Board acts as a court to hear appeals from rulings of the Department of National Revenue, Customs and Excise Division, in respect of excise taxes, tariff classification, value for duty, and drawback of customs duties. Declarations of the Board on appeals on questions of fact are final and conclusive but the Acts contain provisions for appeal, on questions of law, to the Exchequer Court of Canada.

Department of Trade and Commerce.—The Department of Trade and Commerce was established by Act of Parliament on June 23, 1887, but did not function until Dec. 5, 1892, when an Order in Council to this effect was passed. Before the formation of the Department, assistance in the development of Canada's external trade was provided by eight Canadian Commercial Agents—five in the West Indies, two in Great Britain and one in France—who served on a part-time basis and were responsible to the Minister of Finance. A Canadian Commercial Agent was appointed at Sydney, Australia, in 1895, as the first full-time salaried Agent of the Department.

The framework of the present Trade Commissioner Service emerged during the next decade or so, the Commercial Agents gradually giving place to career Trade Commissioners. There are now 156 Trade Commissioners serving at Headquarters and abroad in 63 posts (including Assistant Trade Commissioners and agricultural, fisheries and timber specialists). Where a Trade Commissioner is a member of a mission maintained by the Department of External Affairs, he holds diplomatic status and is known as a Minister (Commercial), Commercial Counsellor or Commercial Secretary.

The Department provides a wide range of services to Canadian businessmen through the Agriculture and Fisheries Branch, the Canadian Government Exhibition Commission, the Commodities Branch, the International Trade Relations Branch, the Trade Commissioner Service, the Trade Publicity Branch and the Domestic Commerce Service. The latter comprises the Depreciation Certification Branch, the National Design Branch, the Industrial Promotion Branch, the Small Business Branch and the Standards Branch.

The following boards, commissions, Crown corporations and agencies report to Parliament through the Minister of Trade and Commerce: the Dominion Bureau of Statistics, the Export Credits Insurance Corporation, the National Energy Board, the Northern Ontario Pipe Line Crown Corporation, the Northern Transportation Company Limited, Eldorado Aviation Limited and Eldorado Mining and Refining Limited.

Department of Transport.—The Department was created on Nov. 2, 1936 from the former Departments of Marine and of Railways and Canals, and the Civil Aviation Branch of the Department of National Defence (RSC 1952, c. 79).

The work of the Department consists of three main Services—Marine, Air and Railways. Marine Service operations include aids to navigation, nautical and pilotage services, marine agencies, secondary canals, steamship inspection and floating equipment, and direct supervision over 300 public harbours; 11 other harbours come under supervision of the Department but are administered by commissions. Air Services cover the operation of civil aviation, meteorological and telecommunications branches. The latter includes the administration and regulation of radar, radio marine and radio aeronautical aids to navigation and of communication by wire and by government telegraph and telephone.

Other services of the Department are in connection with the Government-owned companies: the Canadian National Railways, Canadian Government Railways, the Prince Edward Island, Newfoundland, and Yarmouth-Bar Harbour ferry services, and Trans-Canada Air Lines.

The Minister of Transport is responsible to Parliament for the following boards, commissions and Crown companies: the Air Transport Board, Board of Transport Commissioners, the Canadian Maritime Commission, the National Harbours Board, the Park Steamship Company Limited, the St. Lawrence Seaway Authority, and the Canadian Overseas Telecommunication Corporation.

Department of Veterans Affairs.—This Department, established in 1944 (RSC 1952, c. 80), is concerned exclusively with the welfare of veterans and with the dependants of veterans and of those who died on active service. The Department provides treatment services (hospital, medical, dental and prosthetic), welfare services, education assistance, life insurance, and land settlement and home construction assistance. The Veterans' Bureau assists veterans in the preparation and presentation of pension claims.

The Canadian Pension Commission established by the Pension Act (RSC 1952, c. 207), and the War Veterans Allowance Board established by the War Veterans Allowance Act (RSC 1952, c. 340) also report to Parliament through the Minister of Veterans Affairs.

The Department has treatment institutions and facilities in a number of urban centres. It also maintains, in large cities across Canada, administrative offices, which are shared with the Canadian Pension Commission and the War Veterans Allowance Board, and an office in London, England.

War Veterans Allowance Board.—This Board was established under the authority of the War Veterans Allowance Act, 1930 (RSC 1952, c. 340). It is a statutory body responsible to the Minister of Veterans Affairs for the administration of the Act and consists of three to ten members (three to five permanent, up to three temporary, and up to two additional without pay) appointed by the Governor in Council. Its functions include the responsibility of ensuring that all 18 District Authorities located in various regions throughout Canada interpret the legislation in a fair, reasonable and equitable manner. It is also an appeal body and may consider an appeal of an applicant against the decision of a District Authority.

Section 2.—Crown Corporations

The Crown corporation form of public enterprise is not a new type of organization in Canada but in recent years, as the work of government has become more complex, greater reliance has been placed on it as the appropriate instrument for administering and managing many public services in which business enterprise and public accountability must be combined.

The use of the corporate device to harmonize public responsibility in the development of economic resources and the provision of public services with the pursuit of commercial and industrial objectives has led to the adoption of many different forms and formulas of management. The most usual practice has been to set up a corporation under the provisions of a special Act of Parliament which defines its purposes and sets forth its powers and responsibilities. However, during World War II the Minister of Munitions and Supply was authorized to procure the incorporation of companies under the federal Companies Act, 1934, or under any provincial Companies Act to which he might delegate any of the powers conferred on him under the Department of Munitions and Supply Act or any Order in Council. Under this legislation about 28 companies were created to serve a wide variety of purposes; most of these companies have since been wound up.

Following the successful experience during the war years in relying on the Companies Act for the establishment of Crown companies, similar incorporating powers were granted by an amendment to the Research Council Act and have been incorporated in the Atomic Energy Control and the Defence Production Acts.

In 1946 the Government Companies Operation Act was passed to regulate the operation of companies formed under the Companies Act. However, it was applicable only to a relatively small number of companies and, in order to establish a more uniform system of financial and budgetary control and of accounting, auditing and reporting for Crown corporations generally, Part VIII of the Financial Administration Act was enacted in 1951 and brought into operation by proclamation on Oct. 1, 1952. Upon its enactment the financial provisions of the Government Companies Operation Act were repealed.

One of the more interesting features of the later legislation is the attempt that has been made to define and classify Crown corporations.* The Act defines a Crown corporation as a corporation that is ultimately accountable, through a Minister, to Parliament for the conduct of its affairs and establishes three classes of corporation—departmental, agency and proprietary.

Departmental Corporations.—A departmental corporation is defined as a Crown corporation that is a servant or agent of Her Majesty in right of Canada and is responsible for administrative, supervisory or regulatory services of a governmental nature. Ten departmental corporations are listed in Schedule B to the Act:—

Agricultural Stabilization Board (formerly Agricultural Prices Support Board)
Atomic Energy Control Board
Canadian Maritime Commission
Director of Soldier Settlement
The Director, The Veterans' Land Act
Dominion Coal Board
Fisheries Prices Support Board
National Gallery of Canada
National Research Council
Unemployment Insurance Commission.

* Not all Crown corporations are subject to the provisions of the Financial Administration Act. For example, the Canadian Wheat Board, the Bank of Canada and its subsidiary the Industrial Development Bank, because of the special nature of their functions, are excluded from operations of the Crown corporations Part of the Act and are governed by their own Acts of incorporation as is also the Eastern Rockies Forest Conservation Board, a joint federal-provincial enterprise. Though not included in the Schedules to the Financial Administration Act, certain provisions of the Act apply to the Northern Ontario Pipe Line Crown Corporation, set up on June 7, 1956 to oversee the building of a cross-country natural gas pipeline. The Canada Council was set up under the Canada Council Act (assented to Mar. 28, 1957) as a Crown corporation but has been declared not an agency of the Crown and hence is not included in the Schedules to the Financial Administration Act; the same situation applies to the National Productivity Council set up under the National Productivity Act (assented to Dec. 20, 1960).

Agency Corporations.—An agency corporation is defined as a Crown corporation that is an agent of Her Majesty in right of Canada and is responsible for the management of trading or service operations on a quasi-commercial basis or for the management of procurement, construction or disposal activities on behalf of Her Majesty in right of Canada. The following agency corporations are listed in Schedule C to the Financial Administration Act or have been subsequently added to that Schedule by the Governor in Council:—

Atomic Energy of Canada Limited
 Canadian Arsenals Limited
 Canadian Commercial Corporation
 Canadian National (West Indies) Steamships Limited
 Canadian Patents and Development Limited
 Crown Assets Disposal Corporation
 Defence Construction (1951) Limited
 National Battlefields Commission
 National Capital Commission (formerly Federal District Commission)
 National Harbours Board
 Northern Canada Power Commission (formerly Northwest Territories Power Commission)
 Park Steamship Company Limited.

Two corporations, Canadian Sugar Stabilization Corporation Limited and Commodity Prices Stabilization Corporation Limited, listed in Schedule C when the Financial Administration Act was proclaimed, have since discontinued operations and surrendered their charters. By an Order in Council of June 15, 1955, the name of the Northwest Territories Power Commission (now Northern Canada Power Commission) was deleted from Schedule D and added to Schedule C, effective Apr. 1, 1954.

Proprietary Corporations.—A proprietary corporation is defined as a Crown corporation that (1) is responsible for the management of lending or financial operations, or for the management of commercial or industrial operations involving the production of or dealing in goods and the supplying of services to the public, and (2) is ordinarily required to conduct its operations without Parliamentary appropriations. The following proprietary corporations are listed in Schedule D to the Act or have been subsequently added to that Schedule by the Governor in Council:—

Canadian Broadcasting Corporation
 Canadian Overseas Telecommunication Corporation
 Central Mortgage and Housing Corporation
 Eldorado Aviation Limited
 Eldorado Mining and Refining Limited
 Export Credits Insurance Corporation
 Farm Credit Corporation (formerly Canadian Farm Loan Board)
 National Railways, as defined in the Canadian National-Canadian Pacific Act, 1933
 Northern Transportation Company Limited
 Polymer Corporation Limited
 The St. Lawrence Seaway Authority
 Cornwall International Bridge Company Limited (subsidiary to the St. Lawrence Seaway Authority)
 Trans-Canada Air Lines.

Departmental corporations are governed by the provisions of the Financial Administration Act that are applicable to departments generally. Agency and proprietary corporations, however, are subject to the provisions of the Crown corporations Part of the Act although, if there is any inconsistency between the provisions of that Part and those of any other Act applicable to a corporation, the Act provides that the latter prevail. There is provision in the Part for the control and regulation of such matters as corporation budgets and bank accounts, the turning over to the Receiver General of surplus money, limited loans for working-capital purposes, the awarding of contracts and the establishment of reserves, the keeping and auditing of accounts, and the preparation of financial statements and reports and their submission to Parliament through the appropriate Minister.

A further form of control is exercised by Parliament through the power to vote financial assistance. This may take different forms. For some corporations, capital may be provided by parliamentary grants, loans or advances that may subsequently be converted into capital stock or bonds; for others it may be by the issue of capital stock to be subscribed and paid for by the Government; or by the sale of bonds to either the Government or the public. A few corporations have financed all or a portion of their requirements from their own resources or earnings. Under a special financing arrangement, a 15-p.c. excise tax charged on radio and television sets and their parts and accessories was allocated to the revenue of the Canadian Broadcasting Corporation, but this was discontinued under the provisions of the Broadcasting Act, which came into force on Nov. 10, 1958, and since that time the Corporation has received federal financing solely by parliamentary grants.

Prior to 1952, Crown corporations did not pay corporate income taxes. However, the Income Tax Act was later amended so that, in respect of financial years commencing after Jan. 1, 1952, proprietary Crown corporations pay taxes on income earned in the same manner as any privately owned corporation. One desirable result of this amendment is that the financial statements of these Crown companies are now more comparable with those of private industry, with which in some instances they are in competition, and thus it is easier to assess the relative efficiency of their operations.

The functions of the various Crown corporations are given briefly in the following paragraphs. For a number of them, further details are included in the Chapters dealing with the subjects concerned (see Index).

Agricultural Stabilization Board.—The Board was established in 1958 (SC 1957-58, c. 22) to administer the provisions of the Agricultural Stabilization Act, which has replaced the Agricultural Prices Support Act. The Board reports to Parliament through the Minister of Agriculture.

Atomic Energy Control Board.—By Act of Parliament (RSC 1952, c. 11), proclaimed October 1946, the regulation and control of atomic energy in Canada was placed under the Atomic Energy Control Board. The Board reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Veterans Affairs).

Atomic Energy of Canada Limited.—This Crown company was incorporated in February 1952 under the Atomic Energy Control Act, 1946 (RSC 1952, c. 11) to take over from the National Research Council on Apr. 1, 1952 the operation of the Chalk River project. The main activities of the company are (a) the development of economic nuclear power, (b) scientific research and development in the atomic energy field, (c) the operation of nuclear reactors and (d) the production of radioactive isotopes and associated equipments such as Cobalt-60 beam therapy units for the treatment of cancer. The company reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research (at present the Minister of Veterans Affairs).

Bank of Canada.—Legislation of 1934 (RSC 1952, c. 13) provided for the establishment of a central bank in Canada, the function of which is to regulate credit and currency, to control and protect the external value of the Canadian dollar and to stabilize the level of production, trade, prices and employment so far as may be possible within the scope of monetary action. The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. The Bank is managed by a Board of Directors appointed by the Government and composed of a Governor, a Deputy Governor and 12 Directors; the Deputy Minister of Finance is also a member of the Board. The Bank reports to Parliament through the Minister of Finance and is governed by its own Act of incorporation. (See footnote, p. 102.)

The Canada Council.—Established by Order in Council dated Apr. 15, 1957, this corporation of 21 members, a Director and an Associate Director operates under the terms of the Canada Council Act, assented to Mar. 28, 1957. The function of the Council is to encourage the arts, humanities and social sciences in Canada; its work is financed by a \$50,000,000 University Capital Grants Fund and the earnings from a \$50,000,000 Endowment Fund. In the making, managing and disposing of investments under the Act, the Council has the advice of an Investment Committee of five, including the Chairman and another member of the Council. The proceedings of the Council are reported each year to Parliament through the Prime Minister. (See footnote, p. 102.)

Canadian Arsenals Limited.—This company was established under the Companies Act by Letters Patent dated Sept. 20, 1945 and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and certain provisions of the Financial Administration Act (RSC 1952, c. 116). The company was set up to take over and operate Crown-owned plant and equipment. Among the items it now manufactures are propellants and explosives, small arms, radar equipment, optical and electronic instruments, and a wide variety of ammunition and components. Its divisions, together with the locations of their plants, are as follows: Dominion Arsenal Division (Quebec and Val Rose, Que.); Explosives Division (Valleyfield, Que.); Filling Division (St. Paul l'Ermitte, Que.); Gun Ammunition Division (Lindsay, Ont.); Small Arms Division (Long Branch, Ont.); Instrument and Electronic Division (Scarborough, Ont.). The company is responsible to Parliament through the Minister of Defence Production.

Canadian Broadcasting Corporation.—The new Broadcasting Act, 1958 continues the CBC as a Crown corporation for the purpose of operating a national broadcasting service. It has the authority to maintain and operate broadcasting stations and networks and to originate and secure programs from within and outside Canada. This national radio and television service is financed through annual grants from Parliament and revenues from commercial operations. The Board reports to Parliament through the Minister of National Revenue.

The Corporation consists of a board of 11 Directors appointed by the Governor in Council and chosen to give representation to the principal geographical divisions of the country. The Corporation reports to Parliament through a Minister of the Crown (at present the Minister of National Revenue). The President and Vice President are full-time executives appointed for a period of seven years; the other nine Directors, including a Chairman and Vice Chairman, are appointed for periods of three years and may serve two consecutive terms. A change in the size and representation of the Board is planned by the Government; details will be announced later in 1962.

As the chief executive of the Corporation, the President, with the Vice Presidents, is responsible to the Board of Directors for the conduct of its affairs. They administer the Corporation with four Staff Departments and three Operating Divisions. The Departments, headed by Vice Presidents are: Programs; Administration and Finance; Corporate Affairs; and Engineering and Operations. The Divisions, headed by General Managers, are: Regional, French Networks and English Networks.

The Corporation's Head Office is situated in Ottawa with Headquarters for English Networks in Toronto, for French Networks in Montreal and with Regional Headquarters in St. John's for Newfoundland, Halifax for the Maritime Provinces, Winnipeg for the Prairie Provinces, and Vancouver for British Columbia. Headquarters for the Northern and Armed Forces Services is in Ottawa and for the International Service in Montreal.

Canadian Commercial Corporation.—This Corporation was established on May 1, 1946 by the Canadian Commercial Corporation Act (RSC 1952, c. 35). It purchases goods and commodities in Canada for the governments of other countries. It also acts as purchasing agent for international agencies such as the United Nations International Children's Emergency Fund and the United Nations Korean Reconstruction Agency. Other functions include arranging production and shipment of Canadian contributions of military stores to NATO countries. The Corporation also serves other departments of the Government of Canada. For instance, it arranges for the purchase and production of supplies and services which the External Aid Office is making available to other countries under the Colombo Plan. In carrying out its functions the Corporation works closely with the Department of Defence Production. It is responsible to Parliament through the Minister of Defence Production.

Canadian Maritime Commission.—This Commission was created in 1947 by the Canadian Maritime Commission Act (RSC 1952, c. 38). It considers and recommends policies and measures necessary for the operation, maintenance, manning and development of a merchant marine and a shipbuilding and ship-repairing industry. The Commission administers the Ship Construction Assistance Regulations established by Order in Council P.C. 1961-1290 passed Sept. 8, 1961 and the Canadian Vessel Construction Assistance Act (RSC 1952, c. 43). It also administers steamship subsidies voted by Parliament. Other functions include advice to other government departments on their shipbuilding requirements, consultation with the Department of National Revenue in the administration of the laws relating to the coasting trade of Canada and the co-ordination of the overseas movement of men and material for the Department of National Defence. It has responsibility in international matters relating to merchant shipping, such as NATO, IMCO and other international bodies. The Chairman has the status of a Deputy Minister and the Commission reports to Parliament through the Minister of Transport.

Canadian National Railways.—The Canadian National Railway Company was incorporated (SC 1919, c. 13) to operate and manage a national system of railways, including the Canadian Northern Railway System, the Canadian Government railways and all lines entrusted to it by Order in Council. In 1923 the Grand Trunk Railway Company of Canada was amalgamated with the Canadian National Railway Company and since 1923 a number of railway lines acquired by the Government have been entrusted to the Company for operation and management, including the Newfoundland Railway and steamship services in 1949, the Temiscouata Railway in 1950, and the Hudson

Bay Railway and the Northwest Communication System in 1958. The Canadian National Railways Act, 1919 was repealed in 1955 and the Canadian National Railways Act (SC 1955, c. 29) substituted therefor.

The Canadian National Railway Company is controlled by a Chairman and Board of Directors appointed by the Governor in Council, who report to Parliament through the Minister of Transport.

Canadian Overseas Telecommunication Corporation.—This Crown company was created on Dec. 10, 1949 by Act of Parliament (RSC 1952, c. 42) to acquire for public operation external telecommunication assets in Canada, in keeping with the Commonwealth Telegraph Agreement signed May 11, 1948. This Agreement was designed to bring about the consolidation and strengthening of the radio and cable communication systems of the Commonwealth. The Corporation is responsible to Parliament through the Minister of Transport.

Canadian Patents and Development Limited.—Canadian Patents and Development Limited is a Crown corporation established in 1948, pursuant to authority granted in an amendment to the Research Council Act which was passed in 1946. The primary purpose of the company is to make available to industry, through licensing arrangements, new processes developed by scientific workers of the National Research Council. Its services are equally available to government departments, publicly supported institutions and universities. The company also has cross-agency arrangements with similar government agencies in other Commonwealth countries. The Board of Directors is composed of representatives from the National Research Council, from government departments and from industry and the universities. Any profits that the company may derive from licensing arrangements are available for further research and development. The Corporation reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research.

Canadian Wheat Board.—The Board was incorporated in 1935 under the Canadian Wheat Board Act to market, in an orderly manner, in the interprovincial and export trade, grain grown in Canada. Its powers include authority to buy, take delivery of, store, transfer, sell, ship or otherwise dispose of grain. Except as directed by the Governor in Council, the Board was not originally authorized to buy grain other than wheat but, since Aug. 1, 1949, it may also buy oats and barley if authorized to do so by Regulation approved by the Governor in Council. Only grain produced in the designated area, which includes Manitoba, Saskatchewan, Alberta and parts of British Columbia and Ontario, is purchased by the Board, which controls the delivery of grain into elevators and railway cars in that area as well as the interprovincial movement and export of wheat, oats and barley generally. The Board is governed by its own Act of incorporation (see footnote, p. 102). It reports to Parliament through the Minister of Agriculture.

Central Mortgage and Housing Corporation.—This Corporation was incorporated by Act of Parliament (RSC 1952, c. 46) in December 1945 to administer the National Housing Acts. Under the National Housing Act, 1954 (SC 1953-54 c. 23, as amended by 1956 c. 9, 1957-58 c. 18, 1958 c. 3, 1959 c. 6, 1960 c. 10, and 1960-61 cc. 1 and 61), the Corporation insures mortgage loans made by approved lenders for home ownership and rental housing; insures home improvement loans made by banks; makes direct loans to individual home-owners, to municipalities for construction of sewage treatment projects designed to eliminate pollution in water and soil and to universities for construction of student residences; undertakes jointly with provincial governments the assembly of land and construction of housing projects; provides financial assistance for studies to identify urban areas with blighted and substandard housing; assists municipalities in clearance and rehabilitation of substandard areas; conducts housing research; encourages community planning and owns and manages rental housing units built for war workers and veterans. The Corporation also arranges for and supervises construction of housing projects on behalf of the Department of National Defence and other government departments and agencies. The Corporation is responsible to Parliament through the Minister of Public Works.

Crown Assets Disposal Corporation.—This Corporation is established under the Surplus Crown Assets Act (RSC 1952, c. 260) and is subject to the Financial Administration Act (RSC 1952, c. 116). In June 1944, War Assets Corporation was established by statute to replace War Assets Corporation Limited which had been incorporated in 1943. In 1949 the name of War Assets Corporation was changed to Crown Assets Disposal Corporation. The Corporation's function is to dispose of surplus Crown assets. It is responsible to Parliament through the Minister of Defence Production.

Defence Construction (1951) Limited.—This company was established by Letters Patent in 1951 to take over the general undertakings of Defence Construction Limited. The company carries out major defence construction projects with the exception of houses and airfield runways and is responsible to Parliament through the Minister of Defence Production.

Director of Soldier Settlement and Director of the Veterans' Land Act.—The Director of Soldier Settlement (under the Act of 1919) is also the Director of the Veterans' Land Act, and in each capacity is legally a corporation sole. For administrative purposes, however, the programs carried on under both Acts constitute integral parts of the services provided by the Department of Veterans Affairs.

Dominion Coal Board.—The Board, established as a department in 1947 by the Dominion Coal Board Act (RSC 1952, c. 86), has the responsibility of studying and recommending to the Government policies concerning the production, import, distribution and use of coal. The Chairman has the status of a deputy minister and the Board reports to Parliament through the Minister of Mines and Technical Surveys. The Board administers transportation and other subventions relating to coal, including those under the Atlantic Provinces Power Development Act (SC 1957-58, c. 25). It also administers loans authorized under the Coal Production Assistance Act (RSC 1952, c. 173, as amended by SC 1959, c. 39). The Dominion Coal Board Act makes provision for the regulation and control of the production, distribution and use of fuel in times of national emergency.

Eastern Rockies Forest Conservation Board.—The Board was appointed in 1947 under the Eastern Rocky Mountain Forest Conservation Act which authorized an agreement between the Government of Canada and the Province of Alberta relating to the protection and conservation of the forests of that portion of the eastern slope of the Rocky Mountains which gives rise to the major tributaries of the Saskatchewan River. The function of the Board is to determine the policy necessary to obtain the greatest possible flow of water in the Saskatchewan River system. The planning of programs of forest use and conservation is a joint duty of the Board and the provincial Forest Service. The administration of the conservation area is a function of the province.

Funds for capital expenditures during the first seven years of the agreement were provided by the Federal Government with maintenance expenditures being paid by the Province of Alberta. In 1955 the province undertook the responsibility of financing both capital improvements and maintenance work. Currently, one member of the three-man Board is appointed by the Federal Government and the province has the right to appoint two members. The choice of one of the three members as Board chairman is vested in the province. The Board reports to Parliament through the Minister of Forestry. (See footnote, p. 102.)

Eldorado Aviation Limited.—This company was incorporated Apr. 23, 1953 to carry air traffic, both passenger and freight, for Eldorado Mining and Refining Limited and its wholly owned subsidiary, Northern Transportation Company Limited. It reports to Parliament through the Minister of Trade and Commerce.

Eldorado Mining and Refining Limited.—Set up in 1944 under the name of Eldorado Mining and Refining (1944) Limited (the date was omitted from the name in June 1952), the company's business is the mining and refining of uranium and the production of nuclear fuels in Canada. The company has also entered into contracts for the purchase of uranium concentrates from private producers in Canada. It reports to Parliament through the Minister of Trade and Commerce.

Export Credits Insurance Corporation.—This Corporation commenced operations in 1945 under the Export Credits Insurance Act, 1944 (RSC 1952, c. 105, as amended by 1953-54 c. 15, 1957 c. 8, 1957-58 c. 15, 1959 c. 24, and 1960-61 c. 33) and is administered by a Board of Directors (including the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance) with the advice of an Advisory Council. Its function is to insure Canadian exporters against non-payment by foreign buyers arising out of credit and political risks involved in foreign trade. The Corporation is also authorized to provide financing in respect of an export transaction involving extended credit terms. It reports to Parliament through the Minister of Trade and Commerce.

Farm Credit Corporation.—This Corporation was established on Oct. 5, 1959 (SC 1959, c. 43) for the purpose of providing for the extension of long-term mortgage credit to farmers. The Corporation is responsible to Parliament through the Minister of Agriculture.

Fisheries Prices Support Board.—The Board was set up in July 1947 (RSC 1952, c. 120) to recommend to the Government price support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry. The Board has authority to buy fishery products and to sell or otherwise dispose of them or to pay producers the difference between a price prescribed by the Board and the average price the product actually commands.

Industrial Development Bank.—The Bank, a subsidiary of the Bank of Canada, was incorporated in 1944 to provide loans to industrial enterprises where financing is not available through recognized lending organizations. (See footnote, p. 102.)

National Battlefields Commission.—This Commission was established by Act of Parliament in 1908 to preserve the historic battlefields at Quebec City. The Commission is composed of nine members, seven being appointed by the Federal Government and one each by the Provinces of Ontario and Quebec. The Commission is supported by an annual statutory grant from the Federal Government and is responsible to Parliament through the Minister of Northern Affairs and National Resources.

National Capital Commission.—This Commission is a Crown agency created by the National Capital Act (SC 1958, c. 37), proclaimed Feb. 6, 1959. It is the lineal descendant of the Federal District Commission.

The Commission is served by a full-time paid chairman and comprises a total of twenty members representative of the ten provinces of Canada. There is a staff of seven officials reporting to a general manager, and a permanent work force of about 600.

Co-ordination and development of public lands in the National Capital Region are undertaken by direct planning and construction by the Commission's staff; by co-operation with municipalities; by provision of planning aid or financial assistance in municipal projects; and by advising the Department of Public Works on the siting and appearance of all Federal Government buildings in the 1,800-sq. mile National Capital Region. The Commission reports to Parliament through the Minister of Public Works.

National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquis of Lorne, then Governor General, had recommended and assisted the founding of the Academy. One of the three tasks he assigned to that institution was the establishment of a National Gallery at the seat of government.

By Act of Parliament in 1913, re-enacted in 1951, the National Gallery was placed under the management of a Board of Trustees appointed by the Governor General in Council and now operates under the National Gallery Act (RSC 1952, c. 186). It is responsible to Parliament through a Minister of the Crown (at present the Minister of Citizenship and Immigration).

The first charge of the National Gallery is the development and care of the national art collections. Through its Exhibition Extension Service, travelling exhibitions, educational services such as lectures and art films, guided tours of the National Gallery collections in Ottawa and other services to the general public are controlled. In addition, the National Gallery publishes art publications and reproductions which are distributed by the Queen's Printer.

National Harbours Board.—The Board was established by Act of Parliament in 1936. It is responsible for the administration of port facilities at Halifax, Saint John, Chicoutimi, Quebec, Trois Rivières, Montreal, Vancouver and Churchill, the Jacques Cartier and Champlain bridges at Montreal Harbour, and the government grain elevators at Prescott and Port Colborne, Ont. The Board is responsible to Parliament through the Minister of Transport.

National Productivity Council.—Established by Act of Parliament (SC 1960, c. 4), the Council operates under the terms of the National Productivity Council Act assented to Dec. 20, 1960. The Council consists of 25 members, one of whom is designated Chairman, and includes five members from industry and commerce, five from organized labour, five from agriculture and primary industry, five from the general public, four officers or employees of Her Majesty, and an Executive Director.

The function of the Council is to promote and expedite continuing improvement in productive efficiency in the various aspects of Canadian economic activity and in particular to foster and promote (1) the development of improved production and distribution methods; (2) the development of improved management techniques; (3) the maintenance of good human relations in industry; (4) the use of training programs; (5) the use of re-training programs; (6) the extension of industrial research programs; and (7) the dissemination of technical information. The proceedings of the Council, which is not an agent of Her Majesty, are reported to Parliament each year through the Ministers of Trade and Commerce and Labour. (See footnote, p. 102.)

National Research Council.—In 1917 the Research Council Act was passed and in 1928 laboratories for scientific research were established at Ottawa. The National Research Council now has Divisions of Pure and Applied Chemistry, Building Research, Mechanical Engineering, the National Aeronautical Establishment, Radio and Electrical Engineering, Pure and Applied Physics and Applied Biology. Regional laboratories have been established at Saskatoon, Sask., and Halifax, N.S. A Medical Research Council fully responsible for policy in the field of medical research, but functioning under the general administration of the National Research Council, was established in November 1960. Patentable processes and improvements developed by the Council are made available under licence to industry through a Crown company, Canadian Patents and Developments Limited.

The National Research Council reports to Parliament through the Chairman of the Committee of the Privy Council on Scientific and Industrial Research.

Northern Canada Power Commission.—The Commission was established by Act of Parliament in 1948 to provide electric power to points in the Northwest Territories where a need developed and where power could be supplied on a self-sustaining basis; the Act was amended in 1950 to give authority to the Commission to provide similar services in Yukon Territory. The name of the Commission, formerly Northwest Territories Power Commission, was changed in 1956. The

Commission is composed of a chairman and two members appointed by the Governor in Council. The Commission operates four hydro-electric plants, two of which are located in the Northwest Territories on the Snare River near Yellowknife, and two in the Yukon Territory on the Yukon River at Whitehorse and on the Mayo River near Mayo, and diesel electric plants at Fort Smith, Fort Simpson, Fort Resolution, Frobisher Bay, N.W.T., and Field, B.C., and a diesel power and central heating plant and water supply and sewerage systems at Inuvik, N.W.T.; the Commission also operates, on behalf of the Department of Northern Affairs and National Resources, a small diesel electric and heating plant at Fort McPherson, N.W.T., and a central heating plant and domestic water supply system at Fort Simpson, N.W.T.

The Minister of Northern Affairs and National Resources reports to Parliament for the Commission.

Northern Ontario Pipe Line Crown Corporation.—This Corporation was established by the Northern Ontario Pipe Line Crown Corporation Act (SC 1956, c. 10) for the purpose of constructing the northern Ontario section of the all-Canadian natural gas pipeline and of leasing, with an option to purchase, this section to Trans-Canada Pipe Lines Limited. The northern Ontario section, which extends from the Manitoba-Ontario border to the vicinity of Kapuskasing, Ont., was completed on Oct. 22, 1953 and is now under lease to Trans-Canada Pipe Lines Limited. The Corporation is responsible to Parliament through the Minister of Trade and Commerce. (See footnote, p. 102.)

Northern Transportation Company Limited.—This Company was incorporated in 1947 under the title of Northern Transportation Company (1947) Limited, the date being omitted from the name in 1952. Previously a company chartered under an Alberta statute, it has been a wholly owned subsidiary of Eldorado Mining and Refining Limited since that Crown company was established and carries out the business of a common carrier in the Mackenzie River watershed. The Company is responsible to Parliament through the Minister of Trade and Commerce.

Park Steamship Company Limited.—After World War II this Company acted as an agent for Crown Assets Disposal Corporation in the sale and delivery to purchasers of government war-built ships. This work is completed but the Company remains available to carry out any appropriate duties. It has no staff of its own, any necessary work being done by the staff of the Canadian Maritime Commission (see p. 105). The Company reports to Parliament through the Minister of Transport.

Polymer Corporation Limited.—This Corporation was established in 1942 by Letters Patent under the Companies Act and is subject to the Government Companies Operation Act (RSC 1952, c. 133) and the Financial Administration Act (RSC 1952, c. 116). It was set up to construct and operate a synthetic rubber plant which now produces a variety of synthetic rubber products and some chemicals. The Corporation's principal plant is located at Sarnia, Ont., with specialty rubber and butyl plants in France and Belgium, respectively. The Corporation is responsible to Parliament through the Minister of Defence Production.

St. Lawrence Seaway Authority.—The St. Lawrence Seaway Authority was established by Act of Parliament in 1951 (RSC 1952, c. 242) and came into force by proclamation on July 1, 1954. The Authority was incorporated for the purposes of constructing, maintaining and operating all such works as may be necessary to provide and maintain, either wholly in Canada or in conjunction with works undertaken by an appropriate authority in the United States, a deep waterway between the Port of Montreal and Lake Erie. The Authority is composed of a President and a Vice President and reports to Parliament through the Minister of Transport.

Trans-Canada Air Lines.—TCA came into being by Act of Parliament in 1937 (RSC 1952, c. 268) to provide for the development of a publicly owned scheduled transcontinental air service. Transatlantic air services were inaugurated by TCA on behalf of the Canadian Government during World War II and scheduled operations were commenced at the end of the War. TCA now maintains passenger, mail and commodity traffic services over nationwide routes and also services to the United States, England, Scotland, Ireland, France, Belgium, Switzerland, West Germany, Austria, Bermuda, the Bahamas, Jamaica, Antigua, Barbados and Trinidad. TCA is responsible to Parliament through the Minister of Transport.

Unemployment Insurance Commission.—The Commission was appointed on Sept. 24, 1940 under the provisions of the Unemployment Insurance Act, 1940 (RSC 1952, c. 273) for the purpose of administering the Act and providing a National Employment Service. It is composed of three Commissioners appointed by the Governor in Council, of whom one is designated Chief Commissioner. One Commissioner, other than the Chief Commissioner, is appointed after consultation with organizations representative of workers and the other after consultation with organizations representative of employers. The Chief Commissioner is appointed to hold office for a period of ten years and each of the other Commissioners to hold office for a period not exceeding ten years. The Commission is responsible to Parliament through the Minister of Labour.

Section 3.—Acts Administered by Federal Departments*

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada

NOTE.—Copies of individual Acts of Parliament and amendments may be obtained from the Queen's Printer, Ottawa, at prices of from 10 cents to \$1.50 per copy according to number of pages. Where duplications of certain Acts appear in the list, parts of these Acts are administered under the Departments given.

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Agriculture—		Defence	
RSC 1952	4 Agricultural Products Board	Production—	
	5 Agricultural Products Co-operative Marketing	RSC 1952	35 Canadian Commercial Corporation
	6 Agricultural Products Marketing		62 Defence Production
	9 Animal Contagious Diseases		260 Surplus Crown Assets
22, 305	Canada Dairy Products	External Affairs—	
44	Canadian Wheat Board	1911	28 Respecting the International Boundary Waters Treaty and the existence of the International Joint Commission (amended 1914, c. 5, and 1922, c. 43)
47	Cheese and Cheese Factory Improvement		
52, 313	Cold Storage	1948	71 Carrying into effect the Treaties of Peace between Canada and Italy, Romania, Hungary and Finland
66	Department of Agriculture		
81	Destructive Insect and Pest	RSC 1952	50 Carrying into effect the Treaty of Peace between Canada and Japan
101	Experimental Farm Stations		68 Department of External Affairs
113	Feeding Stuffs	122	Food and Agriculture Organization of the United Nations
115	Fertilizers		
126	Fruit, Vegetables and Honey		142 High Commissioner of the United Kingdom
141	Hay and Straw Inspection		218 Privileges and Immunities (NATO)
155	Inspection and Sale		219 Privileges and Immunities (UN)
167	Live Stock and Live Stock Products	275	United Nations
168	Live Stock Pedigree	1953-54	54 Diplomatic Immunities (Commonwealth Countries)
172	Maple Products Industry	Finance—	
175	Maritime Marshland Rehabilitation		Appropriation (Annual)
177	Meat and Canned Foods		Canadian National Railways Financing and Guarantee (Annual)
180	Milk Test		
209	Pest Control Products	RSC 1952	12 Bank
213	Prairie Farm Assistance		13 Bank of Canada
214	Prairie Farm Rehabilitation		15 Bills of Exchange
248	Seeds		19 Bretton Woods Agreements
294	Wheat Co-operative Marketing		82 Diplomatic Service (Special Superannuation)
1955	27 Canada Agricultural Products Standards		110 Farm Improvement Loans
	36 Meat Inspection		116 Financial Administration
1957-58	22 Agricultural Stabilization		131 Gold Export
1959	43 Farm Credit		151, 326 Industrial Development Bank
1960-61	30 Agricultural Rehabilitation and Development		156 Interest
			182 Municipal Grants
			183 Municipal Improvements Assistance
			204 Pawnbrokers
			221 Provincial Subsidies
			232 Quebec Savings Banks
			245 Satisfied Securities
			261, 336 Tariff Board
			278 Veterans Business and Professional Loans
			296 Winding-up
			315 Currency, Mint and Exchange Fund
			1952-53 47 Public Service Superannuation
			1953-54 28 Fire Losses Replacement Account
			1955 31 Canadian National Railways Refunding
			46 Fisheries Improvement Loans
Auditor General—			
RSC 1952	116 Financial Administration		
Citizenship and Immigration —			
1924	48 Indian Reserve Lands in Ontario		
1927	37 St. Regis Indian Reservation		
1934	29 Caughnawaga Indian Reserve		
1943	19 British Columbia Indian Reserves		
	Mineral Resources		
RSC 1952	33 Canadian Citizenship		
	67 Department of Citizenship and Immigration		
	146 Immigration Aid Societies		
	149 Indian		
	325 Immigration		
Civil Service Commission—			
1960-61	57 Civil Service		

* Compiled from information supplied by the respective Departments.

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Finance—concluded		Justice—concluded	
1956 1	Prairie Grain Producers Interim Financing	160	Juvenile Delinquents
2	Temporary Wheat Reserves	171	Lord's Day
29	Federal-Provincial Tax Sharing Arrangements	198	Official Secrets
1957-58 26	Beechwood Power Project	210	Petition of Right
1959 32	Public Service Pension Adjustment	217, 333	Prisons and Reformatories
1960 1	Prairie Grain Loans	234	Railway
32	International Development Association	253	Solicitor General
1960-61 5	Small Business Loans	266	Tobacco Restraint
		259, 335	Supreme Court
		299	Yukon Administration of Justice
		307	Canada Evidence
		314	Combines Investigation
		322	Extradition
		1952-53 530	Crown Liability
		1953-54 51	Criminal Code
		1958 38	Parole
		1959 34	Royal Canadian Mounted Police Superannuation
		54	Royal Canadian Mounted Police
		1960 44	Canadian Bill of Rights
		1960-61 53	Penitentiary
Fisheries—		Labour—	
RSC 1952 61	Deep Sea Fisheries	RSC 1927 110	Conciliation and Labour
69	Department of Fisheries	RSC 1952 72	Department of Labour
118	Fish Inspection	108	Fair Wages and Hours of Labour
119	Fisheries	132	Government Annuities
120	Fisheries Prices Support	134, 323	Government Employees Compensation
121	Fisheries Research Board	152	Industrial Relations and Disputes Investigation
177	Meat and Canned Foods	178	Merchant Seamen Compensation
194	Northern Pacific Halibut Fishery (Convention)	236	Reinstatement in Civil Employment
244	Salt Fish Board	295	White Phosphorous Matches
293	Whaling Convention	1952-53 19	Canada Fair Employment Practices
1952-53 15	Coastal Fisheries Protection	1955 50	Unemployment Insurance
44	North Pacific Fisheries Convention	1956 38	Female Employees Equal Pay
1953-54 18	Northwest Atlantic Fisheries Convention	1957-58 24	Annual Vacations
1955 34	Great Lakes Fisheries Convention	1960-61 6	Technical and Vocational Training Assistance
1957 11	Pacific Salmon Fisheries Convention	26	Vocational Rehabilitation of Disabled Persons
31	The Pacific Fur Seals Convention		
Forestry—		Mines and Technical Surveys—	
1947 59	Eastern Rocky Mountains Forest Conservation	1951 26	Canada Lands Survey
1960 41	Department of Forestry	RSC 1952 73	Department of Mines and Technical Surveys
Insurance—		95, 318	Emergency Gold Mining Assistance
RSC 1952 31	Canadian and British Insurance Companies	102	Explosives
49	Civil Service Insurance		
70	Department of Insurance		
100	Excise Tax (Part I)		
125	Foreign Insurance Companies		
170	Loan Companies		
251	Small Loans		
272	Trust Companies		
296	Winding-up (Part III)		
1952-53 28	Co-operative Credit Associations		
Justice—		National Defence—	
1940 43	Treachery	RSC 1952 63	Defence Services Pension Continuation
RSC 1952 1	Admiralty	184	National Defence
14	Bankruptcy	283	Visiting Forces (British Commonwealth)
28	Canada Prize	284	Visiting Forces (North Atlantic Treaty)
71	Department of Justice	1959 21	Canadian Forces Superannuation
98	Exchequer Court		
106	Expropriation		
111	Farmers' Creditors Arrangement		
116	Financial Administration		
127	Fugitive Offenders		
144	Identification of Criminals		
154	Inquiries		
158	Interpretation		
169	Judges		
		National Health and Welfare—	
		RSC 1952 74	Department of National Health and Welfare

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
National Health and Welfare— concluded		National Revenue— continued	
<i>National Health—</i>		<i>Taxation—concl.</i>	
RSC 1952 29	Canada Shipping (Part V, Sick Mariners and Marine Hospitals)	1958 32	
165	Leprosy	1959 45	Income Tax
220	Proprietary or Patent Medicine	1960 43	
229	Public Works Health	1961 17	
231	Quarantine	1955 10	Canada - Ireland Income Tax Agreement
1952-53 38	Food and Drugs	11	Canada - Ireland Succession Duties Agreement
1957 28	Hospital Insurance and Diagnostic Services	1956 5	Canada - Denmark Income Tax Agreement
1960-61 35	Narcotic Control	23	Canada - Germany Income Tax Agreement
<i>Welfare—</i>		1956-57 17	Canada - South Africa Death Duties Agreement
RSC 1952 17	Blind Persons	18	Canada - South Africa Income Tax Agreement
109	Family Allowances	1957 16	Canada - Netherlands Income Tax Agreement (amended 1960, c. 18)
199	Old Age Assistance	1957-58 27	Canada - Australia Income Tax Agreement
200	Old Age Security	1958 12	Canada - Belgian Congo Income Tax Agreement
1953-54 55	Disabled Persons	13	Canada - Belgium Income Tax Agreement
1956 26	Unemployment Assistance	1959 20	Canada - Finland Income Tax Agreement
1958 30	Excise Tax (Sect. 47)	1960-61 19	Canada - United States of America Estate Tax Convention
1960-61 59	Fitness and Amateur Sport		
National Library—		<i>Customs and Excise—</i>	
RSC 1952 330	National Library	RSC 1952 58	Customs
National Revenue—		60	Customs Tariff (amended by 316)
<i>Taxation—</i>		75	Department of National Revenue
1940 32		99	Excise (amended by 319)
1940-41 15		100	Excise Tax (amended by 320)
1942-43 26			
1943-44 13		<i>Administered in Part—</i>	
1944-45 38	Excess Profits Tax	RSC 1952 54	United States Treaty (smuggling)
1945 19		2	Aeronautics (amended by 302)
1946 47		9	Animal Contagious Diseases
1947 22		11	Atomic Energy Control
1943-44 21		22	Canada Dairy Products (amended by 305)
1950 27	Canada-U.S. Tax Convention (Income Tax)	29	Canada Shipping
1951 5		30	Canada Temperance
1956 35		44	Canadian Wheat Board
1944-45 31	Canada-U.S. Tax Convention (Succession Duties)	55	Copyright
1950 27		81	Destructive Insect and Pest
1946 38	Canada-U.K. Income Tax Agree- ment	102	Explosives
39	Canada-U.K. Succession Duty Agreement	103	Export
34	Canada-N.Z. Income Tax Agree- ment	113	Feeding Stuffs
1948 40		114	Ferries
1950-51 40	Canada-France Income Tax Con- vention	115	Fertilizers
1952 18		118	Fish Inspection
1950-51 41	Canada-France Succession Duty Convention	119	Fisheries
42	Canada-Sweden Income Tax Agreement	126	Fruit, Vegetables and Honey
RSC 1952 89		128	Game Export
317	Dominion Succession Duty	131	Gold Export
1956-57 22		135	Government Harbours and Piers
1958 29		145	Immigration (amended by 325)
1960 29	Estate Tax	147	Importation of Intoxicating Liquors
RSC 1952 148		155	Inspection and Sale
1952-53 40		167	Live Stock and Live Stock Prod- ucts
1953-54 57		168	Live Stock Pedigree
1955 54	Income Tax	169	Live Stock Shipping
55			
1956 39			
1957 29			
1957-58 17			

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—continued

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
National Revenue— concluded		Northern Affairs and National Resources— concluded	
<i>Administered in</i> <i>Part—concl.</i>		1953-54 4	Department of Northern Affairs and National Resources
RSC 1952 172	Maple Products Industry	1955 47	International River Improvements
177	Meat and Canned Foods	1957-58 25	Atlantic Provinces Power Develop- ment
187	National Harbours Board		
193	Navigable Waters Protection		
194	Northern Pacific Halibut Fishery (Convention)		
209	Pest Control Products	Post Office—	
212	Post Office	RSC 1952 212	Post Office
215	Precious Metals Marking		
220	Proprietary or Patent Medicine	Public Archives—	
231	Quarantine	RSC 1952 163	Laurier House
233	Radio	222	Public Archives
248	Seeds		
271	Transport	Public Printing and Stationery—	
292	Weights and Measures	RSC 1952 226	Public Printing and Stationery
295	White Phosphorous Matches	230	Publication of Statutes
1952-53 15	Coastal Fisheries Protection		
38	Food and Drugs		
1953-54 27	Export and Import Permits	Public Works—	
51	Criminal Code	RSC 1952 91	Dry Docks Subsidies
1955 27	Canada Agricultural Products Standards	106	Expropriation
36	Meat Inspection	114	Ferries
1957 31	Pacific Fur Seal Convention	138	Government Works Tolls
1960-61 35	Narcotic Control	193	Navigable Waters Protection (Part I)
		216	Prime Minister's Residence
		228	Public Works
		269	Trans-Canada Highway
		324	Government Property Traffic
Northern Affairs and National Resources—		Secretary of State—	
1908 57, 58	National Battlefields at Quebec	RSC 1929 55	Reparation Payment
1927 51	Respecting certain debts due the Crown	1947 24	Trading with the Enemy (Transi- tional Powers)
RSC 1927 87	Seed Grain	1948 71	Italy, Rumania, Hungary and Finland Treaties of Peace
88	Seed Grain Sureties		
116	Railway Belt	RSC 1952 18	Boards of Trade
124	Manitoba Supplementary Provi- sions	23, 306	Canada Elections
180	Saskatchewan and Alberta Roads	30	Canada Temperance
211	Railway Belt Water	53	Companies
1928 32	Lac Seul Conservation	54	Companies Creditors Arrangement
1930 3	Alberta Natural Resources	55	Copyright
29	Manitoba Natural Resources	62	Defence Production
37	Railway Belt and Peace River Block	77	Department of State
41	Saskatchewan Natural Resources	83	Disfranchising
1932 35	Refunds (Natural Resources)	87	Dominion Controverted Elections
55	Waterton - Glacier International Peace Park	149	Indian
1939 33	Rainy Lake Watershed Emergency Control	195	Northwest Territories
RSC 1952 90	Dominion Water Power	203	Patent
128	Game Export	208	Pension Fund Societies
162	Land Titles	223	Public Documents
179	Migratory Birds Convention	225	Public Officers
189	National Parks	234	Railway
192	National Wildlife Week	235	Regulations
196	Northern Canada Power Com- mission	247	Seals
224	Public Lands Grants	263	Territorial Lands
263	Territorial Lands	265	Timber Marking
300	Yukon Placer Mining	267	Trade Unions
301	Yukon Quartz Mining	270	Translation Bureau
331	Northwest Territories	295	White Phosphorous Matches
1952-53 21	Canada Water Conservation As- sistance	298	Yukon
39	Historic Sites and Monuments	307	Canada Evidence
53	Yukon	1952-53 49	Trade Marks and Unfair Com- petition

List of the Principal Acts of Parliament Administered by Departments of the Government of Canada—concluded

Department, Year and Chapter of Statute	Name of Act	Department, Year and Chapter of Statute	Name of Act
Trade and Commerce—		Transport—concl.	
RSC 1952 11	Atomic Energy Control	79	Department of Transport
78	Department of Trade and Commerce	135	Government Harbours and Piers
92	Electrical and Photometric Units	136	Government Railways
94	Electricity Inspection	137	Government Vessels Discipline
103	Export	157	International Rapids Power Development
105	Export Credits Insurance	168	Live Stock Shipping
129	Gas Inspection	174	Maritime Freight Rates
153	Inland Water Freight Rates	187	National Harbours Board
164	Length and Mass Units	193	Navigable Waters Protection
191	National Trade Mark and True Labelling	202	Passenger Tickets
215	Precious Metals Marking	211	Pipe Lines
257	Statistics	233	Radio
292	Weights and Measures	234	Railway
1953-54 27	Export and Import Permits	242	St. Lawrence Seaway Authority
1955 14	Exportation of Power and Fluids and Importation of Gas	262	Telegraphs
1956 10	Northern Ontario Pipe Line Crown Corporation	268	Trans-Canada Air Lines
1959 46	National Energy Board	271	Transport (Board of Transport Commissioners)
		276	United States Wreckers
		291	Water Carriage of Goods
		311	Canadian National Railways Capital Revision
Transport—		1955 15	Foreign Aircraft Third Party Damage
	Auditors for National Railways (Annual)	29	Canadian National Railways
	Canadian National Railways Financing and Guarantee (Annual)	31	Canadian National Refunding
1907 22	Intercolonial Railway and Prince Edward Island Railway Employees Provident Fund	1957 38	Windsor Harbour Commissioners
1911 26	Toronto Harbour Commissioners	1958 34	Lakehead Harbour Commissioners
1912 55	Winnipeg and St. Boniface Harbour Commissioners	1960 19	Nanaimo Harbour Commissioners
		21	Oshawa Harbour Commissioners
		26	Canadian National Toronto Terminals
		Veterans Affairs—	
1913 158	New Westminster Harbour Commissioners	1920 54	Returned Soldiers' Insurance (as amended)
162	North Fraser Harbour Commissioners	RSC 1927 188	Soldier Settlement (as amended)
1927 29	Canadian National (West Indies) Steamship Company	RSC 1952 8	Allied Veterans Benefits
RSC 1927 211	Railway Belt Water	51, 312	Civilian War Pensions and Allowances
1929 4	Canadian National Railways Pensions	80	Department of Veterans Affairs
11	Canadian National Refunding	117	Fire Fighters War Service Benefits
12	Canadian National Montreal Terminals	207, 332	Pension (amended 1953-54, c. 62; 1957-58, c. 19; 1960-61, c. 10) (Canadian Pension Commission)
48	Northern Alberta Railways	256	Special Operators War Service Benefits
1931 19, 20	Beauharnois Light, Heat and Power	258	Supervisors War Service Benefits
40	New Westminster Harbour Loan	279, 338	Veterans Insurance (amended 1958, c. 43)
1940 20	Beauharnois Light, Heat and Power	280	Veterans' Land (amended 1953-54, c. 66; 1959, c. 37)
1947 26	Beauharnois Light, Heat and Power	281	Veterans Rehabilitation (amended 1959, c. 17)
42	Port Alberni Harbour Commissioners	289	War Service Grants (amended 1953-54, c. 46; 1959, c. 18)
1948 10	New Westminster Harbour Commissioners Refunding	297	Women's Royal Naval Services and the South African Military Nursing Service (Benefits)
RSC 1952 2, 302	Aeronautics	340	War Veterans Allowance (amended 1955, c. 13; 1957-58, c. 7; 1960, c. 36; 1960-61, c. 39) (War Veterans Allowance Board)
16	Bills of Lading		
20	Bridges	1952-53 27	Children of War Dead (Education Assistance) (amended 1953-54, c. 2; 1958, c. 25; and 1962)
34	Canada Shipping	1953-54 65	Veterans Benefit (amended 1955, c. 43)
38	Belleville Harbour Commissioners		
39	Canadian Maritime Commission		
42	Canadian National - Canadian Pacific		
45	Canadian Overseas Telecommunications Corporation		
	Carriage by Air		

PART IV.—FEDERAL GOVERNMENT EMPLOYMENT

The Civil Service Commission.—As the central personnel agency of the Federal Government, the Civil Service Commission is the custodian of the merit system in the Civil Service of Canada. It is also concerned, however, with many other aspects of personnel administration.

The Civil Service Commission was first established in 1908 under the provisions of the Civil Service Amendment Act of that year which introduced the principle of selection by order of merit for positions in Ottawa. Prior to that, a Board of Examiners (established in 1882) held qualifying examinations for appointment to the service but it did not have the power to appoint. In 1918, the Civil Service Amendment Act was superseded by a Civil Service Act which had the effect, among other things, of bringing positions outside of Ottawa, as well as those at headquarters, under the jurisdiction of the Act and consequently the Commission. This Act served Canada and the civil service well for over four decades until with the passage of time it, too, was in need of substantial amendment. This was accomplished through a new Civil Service Act which received Royal Assent in September 1961 and which came into effect on Apr. 1, 1962.

The new Act applies to about 130,000 employees in all the departments and certain agencies of government and this constitutes the 'civil service' within the legal meaning of that term. The 'public service' is defined as those departments and agencies listed in Schedule A of the Public Service Superannuation Act which embrace about 180,000 employees including the 130,000 under the Civil Service Act. This definition of public service does not include certain Crown corporations—for example, the Canadian Broadcasting Corporation, the Central Mortgage and Housing Corporation, the Canadian National Railways and the Trans-Canada Air Lines. Agencies outside the civil service make their own arrangements, in accordance with various statutes, for the selection and employment of staff.

Recruitment.—The recruitment of civil servants under the Civil Service Act is conducted by means of open competitive examinations through which every citizen has the opportunity to compete for positions in the service of his country. Examinations are held periodically as staff requirements of the civil service dictate. Ordinarily, any Canadian citizen may apply for headquarters positions at Ottawa but applicants for local positions must normally be residents of the locality in which the vacancy occurs. Competitive examinations are announced through the press and through posters displayed on the public notice boards of the larger post offices, offices of the National Employment Service, offices of the Civil Service Commission and elsewhere. The examinations may be written, oral, a demonstration of skill, or any combination of these.

The names of persons successful in civil service examinations, arranged in order of rank, are recorded on eligible lists. Examination results are formally announced by publication in the *Canada Gazette* and each candidate—successful or unsuccessful—is advised of his standing. Appointments are made as required from the eligible lists which usually remain valid for one year.

The rank of the various successful candidates on eligible lists is influenced by the veterans' preference. Actually the preference is limited largely, in accordance with its definition by law, to members of the Armed Forces who have served overseas in World Wars I or II or in the Korean theatre of operations. The highest order of preference is the disability preference accorded to pensioners of the Armed Forces who, as a result of their war service, have been unable to resume their pre-war civilian occupations.

The operations of the Civil Service Commission are decentralized to a considerable degree and the Commission now has ten district offices and six sub-offices across the country. These offices have a significant measure of autonomy enabling them to give quick and efficient service to the field agencies of departments which comprise over three-quarters of the civil service.

Each year the Civil Service Commission conducts about 5,000 competitions, receives about 180,000 applications and makes about 20,000 appointments, mainly to offset the turnover occasioned by deaths, retirements, resignations and the other forms of attrition. One feature of its recruiting program is the annual selection of 700 or more university graduates. There are some 10,000 university graduates in the civil service and, of course, many more in agencies and corporations not under the Civil Service Act.

Promotion.—It is a prime feature of the Civil Service Act to create a career service. The result is that promotion, like entrance, is based on merit and a sound promotion system is in operation. Promotion competitions are of two kinds, inter-departmental and departmental. The former are open to employees of all departments and agencies and are conducted by the Civil Service Commission. The latter, the departmental competitions, are restricted to employees of one department or a portion of a department and are conducted by the departments themselves subject to audit and approval by the Commission. There is appeal machinery under Commission jurisdiction for those employees who feel that their qualifications have not been properly assessed. Each year approximately 6,000 promotion competitions are conducted and as a result of these about 20,000 employees are promoted.

Position Classification.—Provision is made in the Civil Service Act for the classifying of positions in the civil service. A formal system of position classification was first instituted in 1919 and positions with like duties and responsibilities were classified alike and remunerated equally. Each position has a title, a set of tasks or duties which are proper to it in the organization in which it occurs and, arising out of these duties, a set of qualifications appropriate for their performance. Positions with duties of a similar kind are grouped together under a common title to form a class and grades within the class reflect the level of responsibility. There are some 1,800 classes and grades in the civil service and the Commission is constantly reviewing them to ensure that the specifications are accurate. Position classification is a mainspring in the Commission's primary function of recruitment, involving as it does the fixing of standards of qualification for each class of position.

Salary Determination.—It is also a responsibility of the Civil Service Commission to recommend to the Governor in Council rates of pay for each class and grade in the civil service. In order that its recommendations may be soundly based, the Commission has established a Pay Research Bureau which provides objective information on compensation and working conditions for various occupations in government, business and industry. These data are studied in relation to comparable classes in the civil service and in combination with other relevant factors—such as the need to recruit and retain sufficient staff, and in the light of the relationship of one class to another—and after this process is complete a recommendation is submitted to the Governor in Council for consideration. The Governor in Council also fixes the salaries for those employees who are not under the Civil Service Act.

Organization and Methods.—In recent years there has been an increasing awareness of the extent to which economical administration depends on the adoption of modern management techniques and devices. To meet this need the Commission has created a Management Analysis Division and an Organization Division to study problems of management in collaboration with officials directly responsible for major areas of administration. These Divisions afford practical assistance to departments and other agencies of the Government through the systematic examination of structures, operations, procedures and work methods. Their facilities are offered free of charge to all departments.

Staff Training.—In 1947 the Commission set up a Staff Development and Training Division to promote and guide a systematic service-wide training scheme. The training scheme sponsored by the Commission is a joint venture undertaken in co-operation with the various departments, most of which have parallel training divisions. The Commission's Staff Development and Training Division is primarily a co-ordinating agency. It promotes

and organizes training activities, trains departmental instructors in the presentation of courses, prepares and gives certain courses of general application to all departments, publishes booklets and other training aids, assists departments in developing training to meet specialized needs and acts as a general clearing-house for the exchange of information on training matters. It also studies requests for educational leave in order to satisfy itself that such leave is in the public interest.

Employee Relations.—The Civil Service Act confers on recognized staff associations the right to be consulted on matters of remuneration and conditions of employment. This consultation may be initiated by either the official or staff sides and may take three forms. On questions of remuneration, which include certain allowances as well as pay, the consultation takes place between the associations and the Minister of Finance or such members of the public service as he may designate and this may, of course, include members of the Commission. On terms and conditions of employment as enumerated in Sect. 68 (1) of the Civil Service Act (which are mainly those with a fiscal effect, such as leave), the consultation takes place between the associations and the Commission and such members of the public service as the Minister of Finance may designate. On those terms and conditions of employment that come within the exclusive jurisdiction of the Commission, the consultation takes place between the associations and the Commission alone. This form of tripartite consultation was introduced on Apr. 1, 1962 when the new Civil Service Act came into force and is designed to be consistent with the distribution of authority in the Act. It is expected to introduce a more sophisticated employee-employer relationship to the federal civil service.

Statistics of Federal Government Employment.*—The current monthly survey of Federal Government employment, started in 1952, covers all employees of the Government of Canada; employees in this sense exclude the Governor General and Lieutenant-Governors, Ministers of the Crown and Members of Parliament, judges, persons under contract and members of the Armed Forces, but include Force members of the Royal Canadian Mounted Police. The survey is divided into two main categories: (1) departmental branches, services and corporations, and (2) agency and proprietary corporations and other agencies. Table 1 combines the two groups; Tables 2 to 6 cover employees in the first category and Table 7 covers employees in the second category.

* Prepared in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

1.—Total Federal Government Employees, by Province, as at Mar. 31, 1961, and Earnings for the Year Ended Mar. 31, 1961

Item and Province or Territory	Departments	Departmental Corporations	Agency Corporations	Proprietary Corporations	Other Agencies	Total
	No.	No.	No.	No.	No.	No.
Employees—						
Newfoundland.....	3,994	239	—	5,027	—	9,260
Prince Edward Island.....	1,201	62	—	956	—	2,219
Nova Scotia.....	13,696	456	337	5,638	38	20,165
New Brunswick.....	6,743	593	115	7,991	22	15,464
Quebec.....	29,728	3,221	3,533	30,220	221	66,923
Ontario.....	79,071	7,393	4,842	34,137	904	126,347
Manitoba.....	9,507	668	59	13,908	656	24,798
Saskatchewan.....	6,167	449	22	4,598	19	11,255
Alberta.....	13,174	573	24	6,374	65	20,210
British Columbia.....	18,854	1,252	183	6,382	66	26,737
Yukon and Northwest Territories.....	3,176	7	172	70	—	3,425
Abroad.....	2,565	18	13	8,008	9	10,613
Totals, Employees.....	187,876	14,931	9,300	123,309	2,000	337,416
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Totals, Earnings.....	748,202	55,858	44,135	584,120	8,027	1,440,342

The first of what will be an annual survey of employment in departmental branches, services and corporations in metropolitan areas was prepared covering the month of March 1961. This report, entitled *Federal Government Employment in Metropolitan Areas* (Catalogue No. 72-205), contains details of the number of employees at Mar. 31, 1961 and the earnings of all persons employed during that month. Summary statistics are given in Table 8.

Departmental Branches, Services and Corporations.—The salaries of employees in this group are paid from the Consolidated Revenue Fund. Definitions of classifications are as follows. "Salaried" employees include all persons paid on the basis of an annual salary rate with the exception of ships' officers who, though paid an annual salary rate, are subject to special treatment under the regulations made pertaining to the Financial Administration Act. The salaried staff are employed in departmental branches, services and corporations which are subject to regulation by the Treasury Board and for which the positions are outlined in detail in the *Estimates of Canada*, or are established by means of supplementary Treasury Board Minutes. Thus this category of employees includes persons subject to the provisions of the Civil Service Act plus salaried persons employed on the staffs of Cabinet Ministers and appointed by statute or by Order in Council, and also the salaried staffs of certain administrative branches of the Government that do not fall under the jurisdiction of the Civil Service Act.

"Prevailing Rate" employees are those who occupy continuing positions that are subject to prevailing rate regulations and are therefore paid on the basis of standard wage rates for similar work in the area in which the individual is employed. Regulations made under authority of the Financial Administration Act govern the third group entitled "Ships' Officers and Crews".

These three groups comprise what may be called the "regular" employees of the government service. "Casuals and Others" are principally persons employed on a non-continuing basis.

Table 5 presents statistics for departmental branches, services and corporations on the basis of a classification by function. The purpose of such classification is to supply a means of studying the operation of government without the complication that results from differences in administrative establishment. This analysis is useful in three ways. First, it permits a detailed study of employment by the Government of Canada according to the main purposes or functions and, since these functions are not subject to the periodic changes that alter the administrative structure of the Government, it is possible to develop a statistical series which, with minor exceptions, is consistent over an extended period of time. Secondly, since differences in administrative establishment are eliminated, it is possible to make meaningful comparisons between Federal Government expenditures on employment and similar expenditures by other levels of government. Thirdly, an analysis of the relationship between expenditures on employment and total expenditures may be made with regard to each function.

Table 6 is an administrative analysis of departmental branches, services and corporations, showing data for these bodies as they were organized at Mar. 31, 1961. Because of periodic changes in the administrative structure of the Government, comparisons over a period of years should be based on the classification by function given in Table 5. Although most salaried staffs fluctuate little during the year, the Taxation Branch of the Department of National Revenue increases its staff considerably in March and April because of the heavy flow of income tax returns during that period, the Legislation branches employ extra staff during each session of Parliament, and several departments employ considerable numbers of students in the summer months. Prevailing rate and other types of employment generally reach a peak in numbers during summer and decline to a lower level in winter.

2.—Employees in Departmental Branches, Services and Corporations of the Federal Government, at End of Each Month, Years Ended Mar. 31, 1960 and 1961

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Fiscal Year and Month	Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
	No.	No.	No.	No.	No.
1959-60—					
April.....	155,162	23,881	2,488	181,531	13,921
May.....	156,982	25,029	2,616	184,627	15,023
June.....	156,451	26,757	2,745	185,953	15,325
July.....	156,193	27,655	2,875	186,723	16,774
August.....	155,899	26,627	2,915	185,441	16,567
September.....	154,619	24,633	2,869	182,121	15,622
October.....	154,700	23,648	2,707	181,055	14,635
November.....	155,088	22,913	2,833	180,834	14,582
December.....	154,957	22,601	2,693	180,251	13,257
January.....	155,423	22,319	2,681	180,323	13,016
February.....	156,188	22,370	2,538	181,096	12,229
March.....	157,352	22,382	2,571	182,305	13,325
1960-61—					
April.....	156,402	23,025	2,620	182,047	12,959
May.....	157,125	24,487	2,846	184,458	13,930
June.....	157,679	26,176	2,980	186,835	14,212
July.....	158,223	26,671	2,990	187,884	14,493
August.....	157,922	26,052	3,018	186,992	14,456
September.....	157,013	24,172	3,038	184,223	13,939
October.....	157,337	23,290	3,017	183,644	13,729
November.....	158,442	23,492	3,037	184,971	15,003
December.....	158,704	23,760	2,854	185,318	15,176
January.....	158,314	23,929	2,789	186,012	16,266
February.....	159,699	23,961	2,751	186,411	16,759
March.....	160,282	23,918	2,754	186,954	15,853

3.—Earnings of Employees in Departmental Branches, Services and Corporations of the Federal Government, by Month, Years Ended Mar. 31, 1960 and 1961

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in Table 7.

Fiscal Year and Month	Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
REGULAR EARNINGS					
	\$	\$	\$	\$	\$
1959-60—					
April.....	48,749,450	5,911,267	652,407	55,313,124	3,189,169
May.....	49,250,178	6,230,737	716,723	56,197,638	3,487,056
June.....	49,255,618	6,433,781	737,806	56,427,205	3,693,832
July.....	49,490,407	7,242,952	799,643	57,533,002	4,203,648
August.....	49,415,782	6,613,743	807,526	56,837,051	3,990,937
September.....	49,016,770	6,187,662	805,549	56,009,981	3,915,977
October.....	49,210,582	6,146,833	823,892	56,181,307	3,636,506
November.....	49,315,618	5,689,239	833,502	55,838,359	3,240,711
December.....	49,247,505	5,929,361	818,025	55,994,891	3,092,069
January.....	49,502,851	5,846,704	799,820	56,150,375	2,863,496
February.....	49,695,565	5,544,253	782,793	56,022,611	2,752,231
March.....	49,880,864	5,960,972	790,924	56,632,760	3,095,203
1960-61—					
April.....	51,058,226	5,858,690	793,229	57,710,145	2,892,521
May.....	51,554,906	6,299,606	886,818	58,741,330	3,243,808
June.....	51,942,261	6,536,094	905,918	59,384,273	3,510,236
July.....	52,941,616	7,044,326	920,981	60,906,923	3,582,720
August.....	55,177,875	6,999,932	920,955	63,108,762	3,834,919
September.....	55,166,244	6,556,229	928,858	62,651,331	3,591,993
October.....	55,475,368	6,145,823	922,623	62,543,814	3,280,499
November.....	56,032,617	6,230,641	918,600	63,181,858	3,444,156
December.....	56,317,812	6,688,196	872,013	63,878,021	3,925,155
January.....	56,731,937	6,462,189	852,176	64,046,302	4,079,313
February.....	56,745,404	6,006,577	874,500	63,626,481	3,987,041
March.....	56,873,070	6,758,490	882,950	64,514,510	4,441,144

3.—Earnings of Employees in Departmental Branches, Services and Corporations of the Federal Government, by Month, Years Ended Mar. 31, 1960 and 1961—concluded

Fiscal Year and Month	Salaried	Prevailing Rate	Ships' Officers and Crews	Total	Casuals and Others
OVERTIME PAYMENTS REPORTED					
	\$	\$	\$	\$	\$
1959-60—					
April.....	778,003	209,614	40,921	1,028,538	94,442
May.....	441,138	248,998	57,960	748,096	103,163
June.....	535,987	236,639	68,485	841,111	124,739
July.....	363,814	307,591	92,775	764,180	182,875
August.....	338,750	265,280	112,574	716,604	177,441
September.....	414,258	225,301	80,169	719,728	181,781
October.....	478,240	249,110	83,258	810,608	140,051
November.....	563,776	237,611	85,142	886,529	99,103
December.....	764,078	206,419	58,387	1,028,884	82,431
January.....	838,152	265,366	58,299	1,161,817	82,167
February.....	2,289,632 ¹	227,526	34,247	2,551,405	68,558
March.....	416,734	212,606	104,317	733,657	67,427
1960-61—					
April.....	582,319	252,155	81,659	916,133	67,009
May.....	771,553	276,904	101,527	1,149,984	78,439
June.....	684,363	241,449	88,976	1,014,788	108,553
July.....	480,767	355,235	103,364	939,366	144,694
August.....	574,955	256,663	107,995	939,613	141,485
September.....	646,887	228,023	121,910	996,820	158,570
October.....	525,698	227,408	87,852	860,958	138,044
November.....	707,712	209,966	82,164	999,842	97,936
December.....	1,005,592	230,094	53,721	1,289,407	81,633
January.....	714,361	279,497	35,821	1,029,679	82,539
February.....	1,679,049 ¹	222,399	45,738	1,947,186	63,853
March.....	519,816	254,229	89,720	863,765	73,019
RETROACTIVE PAYMENTS REPORTED					
	\$	\$	\$	\$	\$
1959-60—					
April.....	802	54,728	—	55,530	17,161
May.....	442	62,164	340	62,946	14,191
June.....	4,565	109,295	52,368	166,228	30,301
July.....	2,105	30,824	34,824	67,853	21,106
August.....	2,979	38,588	10,584	52,151	12,845
September.....	399	97,101	—	97,500	41,799
October.....	3,768	41,078	114,052	158,898	17,200
November.....	22,250	61,285	57,146	140,681	12,935
December.....	2,691	23,971	281,383	308,045	25,832
January.....	1,812	12,855	54,733	69,400	13,046
February.....	7,766	23,419	32	21,217	13,730
March.....	1,287	38,128	17,803	57,218	31,817
1960-61—					
April.....	1,050	33,349	10,593	44,992	151,708
May.....	8,166	61,913	3,983	74,062	15,524
June.....	5,389	61,658	4,214	71,261	26,032
July.....	44,638	33,549	3,027	81,214	10,762
August.....	28,412	79,316	2,857	110,585	207,683
September.....	41,337	53,986	199	95,522	56,432
October.....	24,759	93,935	3,524	122,218	35,080
November.....	24,491	66,864	25	91,380	45,083
December.....	27,410	56,564	8,277	92,251	32,816
January.....	6,864	43,641	18,404	68,909	29,338
February.....	4,384	71,857	8,348	84,589	24,052
March.....	15,001	86,294	57,674	158,969	39,357

¹ Includes Christmas overtime pay of Post Office employees.

4.—Employees in Departmental Branches, Services and Corporations of the Federal Government, by Province and Sex, as at Mar. 31, 1961

NOTE.—Excludes employee and proprietary corporations and other agencies, figures for which are given in Table 7.

Province or Territory	Salaried			Prevailing Rate			Ships' Officers and Crews		
	Male	Female	Total	Male	Female	Total ¹	Male	Female	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	2,440	375	2,815	416	72	498	209	—	209
Prince Edward Island...	620	127	747	152	15	236	101	—	101
Nova Scotia.....	6,054	1,883	7,937	2,526	296	3,127	934	1	935
New Brunswick.....	4,393	1,116	5,509	728	176	925	143	—	143
Quebec.....	19,802	5,896	25,698	3,028	783	3,820	514	—	514
Ontario.....	51,361	23,754	75,115	4,574	2,469	7,099	127	4	131
Manitoba.....	5,859	1,972	7,831	864	413	1,457	13	—	13
Saskatchewan.....	4,503	1,137	5,640	414	88	631	—	—	—
Alberta.....	7,449	2,538	9,987	1,249	376	2,608	9	—	9
British Columbia.....	11,159	3,884	15,043	1,873	491	2,601	683	—	683
Yukon and Northwest Territories.....	1,145	388	1,533	514	116	916	16	—	16
Abroad.....	1,381	1,046	2,427	—	—	—	—	—	—
Totals.....	116,166	44,116	160,282	16,338	5,295	23,918	2,749	5	2,754

Province or Territory	Totals			Casuals and Others		
	Male	Female	Total ¹	Male	Female	Total ²
	No.	No.	No.	No.	No.	No.
Newfoundland.....	3,065	447	3,522	470	47	711
Prince Edward Island.....	873	142	1,084	152	14	179
Nova Scotia.....	9,514	2,180	11,999	1,831	118	2,153
New Brunswick.....	5,264	1,292	6,577	497	139	759
Quebec.....	23,244	6,679	30,032	2,207	585	2,917
Ontario.....	56,062	26,227	82,345	2,614	1,153	4,119
Manitoba.....	6,736	2,385	9,301	648	207	874
Saskatchewan.....	4,917	1,225	6,271	244	94	345
Alberta.....	8,707	2,914	12,604	797	188	1,143
British Columbia.....	13,715	4,375	18,327	1,332	234	1,779
Yukon and Northwest Territories.....	1,675	504	2,465	280	51	718
Abroad.....	1,381	1,046	2,427	92	64	156
Totals.....	135,253	49,416	186,954	11,164	2,894	15,853

¹ Includes employees undistributed as to sex, totalling 2,285.

² Includes employees undistributed as to sex, totalling 1,795.

5.—Federal Government Employees as at Mar. 31, 1961, and Regular Earnings for the Year Ended Mar. 31, 1961, classified by Function

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in summary form in Table 7.

Function	Salaried			Prevailing Rate			Ships' Officers and Crews			Totals			Casuals and Others		
	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$	Em- ployees	Regular Earnings	\$
	No.			No.			No.			No.			No.		
Defence Services	32,528	124,896,488		13,911	49,391,656		648	2,423,572		47,087	176,711,716		7,219	22,359,176	
Veterans Pensions and Other Benefits	11,537	45,014,116		1,966	3,723,685		—	—		13,503	48,737,801		—	—	
General Government	29,067	120,764,658		3,109	8,847,140		6	24,348		32,182	129,636,146		421	1,459,778	
Executive and administrative.....	26,274	110,380,139		3,103	8,840,131		6	24,348		29,383	119,234,618		370	1,400,565	
Legislative.....	974	3,115,432		6	7,009		—	—		980	3,122,441		—	—	
Research, planning and statistics.....	1,819	7,259,087		—	—		—	—		1,819	7,259,087		51	59,113	
Protection of Persons and Property	11,543	48,343,836		—	—		—	—		11,543	48,343,836		3	8,812	
Law enforcement.....	194	888,133		—	—		—	—		194	888,133		—	—	
Correction.....	2,470	9,969,733		—	—		—	—		2,470	9,969,733		2	4,536	
Police protection.....	7,804	32,107,002		—	—		—	—		7,804	32,107,002		—	—	
Other.....	1,075	5,378,968		—	—		—	—		1,075	5,378,968		1	4,276	
Transportation and Communications	9,735	43,109,738		699	2,664,450		1,768	6,870,417		12,202	52,644,605		1,608	5,572,051	
Airways.....	3,776	16,904,714		300	1,077,111		—	—		4,076	17,981,825		738	2,118,346	
Highways, roads and bridges.....	227	1,398,457		42	319,008		—	—		269	1,717,495		18	157,490	
Railways.....	172	1,082,575		—	—		—	—		172	1,082,575		—	—	
Telephone, telegraph and wireless.....	2,458	10,873,740		24	88,897		—	—		2,482	10,962,637		37	296,177	
Waterways.....	2,563	10,500,119		333	1,179,434		1,768	6,870,417		4,664	18,549,970		815	3,000,038	
Other.....	539	2,350,103		—	—		—	—		539	2,350,103		—	—	
Health	2,715	10,854,727		520	1,061,913		—	—		3,235	11,916,640		214	590,222	
General.....	373	1,649,153		6	13,990		—	—		379	1,663,143		—	—	
Public health.....	643	3,365,555		—	—		—	—		643	3,500,002		11	17,598	
Hospital care.....	1,699	5,840,019		464	913,476		—	—		2,103	6,753,495		203	572,624	

Social Welfare	10,305	39,435,438	15	41,823	3	12,683	10,323	39,489,934	2,729	4,104,129
Aid to aged persons.....	18	88,598	—	—	—	—	18	88,598	—	—
Family allowances.....	817	2,849,470	—	—	—	—	817	2,849,470	—	—
Labour.....	381	1,904,664	—	—	—	—	381	1,904,664	14	16,184
National employment services.....	8,165	30,461,094	3	11,435	—	—	8,168	30,472,529	2,663	4,064,304
Other social welfare.....	924	4,131,602	12	30,388	3	12,683	939	4,174,673	52	23,641
Recreational and Cultural Services	1,533	7,632,133	1,936	5,218,736	—	—	3,469	12,850,869	855	1,908,834
Archives, art galleries, museums and libraries.....	1,297	1,317,316	6	19,910	—	—	303	1,337,226	15	32,651
Parks, beaches and other recreational areas.....	503	2,357,445	1,930	5,198,826	—	—	2,433	7,556,271	803	1,770,495
Other.....	733	3,957,372	—	—	—	—	733	3,957,372	37	105,688
Education	1,796	7,248,482	9	12,461	—	—	1,805	7,260,943	327	158,797
Indian and Eskimo schools and schools in N.W.T.....	1,784	7,182,540	9	12,461	—	—	1,793	7,195,001	327	158,797
Universities, colleges and other schools.....	12	65,942	—	—	—	—	12	65,942	—	—
Natural Resources and Primary Industries	13,007	63,523,599	1,625	6,192,820	325	1,342,386	14,957	71,058,805	1,098	3,352,790
Fish and game.....	1,712	8,432,588	25	323,748	325	1,342,386	2,092	10,083,702	118	630,919
Forests.....	1,442	2,341,430	61	304,239	—	—	1,503	2,645,669	51	74,580
Lands—settlement and agriculture.....	7,926	37,758,756	1,173	4,346,069	—	—	9,099	42,104,825	506	1,508,384
Minerals and mines.....	1,241	7,114,540	72	306,663	—	—	1,320	7,421,202	—	21
Water resources.....	1,201	1,078,009	6	15,348	—	—	1,207	1,093,357	21	75,284
Other.....	1,478	6,808,266	288	800,753	—	—	1,766	7,705,049	402	1,084,634
Trade and Industrial Development	1,087	4,926,221	—	—	—	—	1,087	4,926,221	51	198,460
Public Service and Trading Enterprises	154	631,999	—	—	—	—	154	631,999	40	176,997
Other	35,275	139,635,911	128	432,109	4	16,215	35,407	140,084,235	1,288	3,993,449
Civil Defence.....	116	532,799	33	74,364	—	—	149	607,163	—	371
International co-operation and assistance.....	405	461,188	—	—	—	—	385	461,188	—	—
Immigration and Citizenship.....	2,621	11,036,274	36	86,198	4	16,215	2,661	11,138,087	61	39,543
External Affairs.....	1,969	8,120,299	—	—	—	—	1,969	8,120,299	125	78,704
Bulletin and collage.....	135	879,679	—	—	—	—	135	879,679	—	—
Post Office.....	25,795 ¹	95,645,671 ¹	25	148,105	—	—	25,820	95,795,776	502 ²	894,872 ²
Other.....	4,484	22,960,051	34	123,442	—	—	4,518	23,083,473	600	2,909,899
Grand Totals	160,282 ⁴	656,017,336 ⁴	23,918	77,586,793	2,754	10,689,621	186,954	744,293,750	15,853	43,813,465

¹ Excludes 14,173 employees paid from postal revenues, earning \$22,257,091.² Excludes Christmas helpers, earning \$3,043,393.

Department of Mines and Technical Surveys—prevailing rate employees with earnings of \$526,144; and ships' officers and crews with earnings of \$741,737.

³ Excludes field parties of the Governor General and 10 Lieutenant-Governors with earnings amounting to \$139,668; 320 judges, earning \$4,792,129; and 24 Ministers of the Crown, earning \$346,690.⁴ Excludes

6.—Federal Government Employees as at Mar. 31, 1961, and Regular Earnings for the Year Ended Mar. 31, 1961, classified by Department and Principal Branch or Service

NOTE.—Excludes agency and proprietary corporations and other agencies, figures for which are given in summary form in Table 7.

Department and Branch or Service	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$	Em- ployees	Regular Earnings \$
Agriculture	No.		No.		No.		No.		No.	
Administration Branch.....	7,650	33,932,356	1,173	4,343,671	—	—	8,223	33,296,027	489	1,448,024
Research Branch.....	2,350	1,662,702	—	—	—	—	350	1,662,702	—	—
Production and Marketing Branch.....	2,794	14,354,091	958	3,611,923	—	—	3,752	17,996,014	—	—
Special.....	3,114	14,321,047	69	266,180	—	—	3,183	14,587,227	421	925,504
	792	3,584,516	146	465,568	—	—	938	4,050,084	68	522,520
Atomic Energy Control Board	8	45,167	—	—	—	—	8	45,167	—	—
Auditor General's Office	135	810,069	—	—	—	—	135	810,069	—	—
Board of Broadcast Governors	27	125,503	—	—	—	—	27	125,503	—	—
Chief Electoral Officer, Office of the	19	103,299	—	—	—	—	19	103,299	—	—
Citizenship and Immigration	4,490	18,340,436	55	124,880	3	12,683	4,548	18,477,999	433	210,099
Departmental Administration.....	157	684,115	1	3,251	—	—	158	687,366	—	—
Citizenship.....	191	786,657	—	—	—	—	191	786,657	—	—
Immigration Branch.....	1,885	7,598,878	33	78,780	—	—	1,918	7,677,658	54	27,661
Indian Affairs Branch.....	2,257	9,270,786	21	42,849	3	12,683	2,281	9,326,218	379	182,438
Civil Service Commission	665	3,265,941	—	—	—	—	665	3,265,941	13	11,711
Defence Production	1,430	7,253,652	—	—	—	—	1,430	7,253,652	2	3,525
External Affairs	1,996	8,283,904	—	—	—	—	1,996	8,283,904	125	78,764
Departmental Administration.....	934	3,752,355	—	—	—	—	934	3,752,355	—	—
Representation Abroad.....	1,050	4,448,493	—	—	—	—	1,050	4,448,493	125	78,764
International Joint Commission.....	12	83,056	—	—	—	—	12	83,056	—	—
Finance	5,103	19,520,157	—	—	—	—	5,103	19,520,157	198	329,649
General Administration.....	4,660	17,622,257	—	—	—	—	4,660	17,622,257	196	327,159
Administration of various Acts, etc.....	425	1,840,118	—	—	—	—	425	1,840,118	—	—
Contingencies and miscellaneous.....	18	57,782	—	—	—	—	18	57,782	2	2,490
Fisheries	1,639	8,032,972	25	323,748	325	1,342,386	1,989	9,699,106	105	627,572
General Services.....	174	848,886	3	6,449	—	—	177	855,335	6	39,556

Field Services.....	913	4,203,478	21	303,198	253	1,093,476	1,187	5,600,152	98	520,359
Special.....	33	131,604	1	14,101	13	43,896	47	189,601	—	36,110
Fisheries Research Board of Canada.....	519	2,849,004	—	—	59	205,014	578	3,054,018	1	31,847
Forestry².....	7	19,640	—	—	—	—	7	19,640	—	—
Governor General and Lieutenant-Governors³.....	17	73,525	—	—	—	—	17	73,525	—	—
Insurance.....	95	556,138	—	—	—	—	95	556,138	—	—
Justice.....	2,837	11,716,224	—	—	—	—	2,837	11,716,224	3	8,812
Department.....	367	1,746,491	—	—	—	—	367	1,746,491	1	4,276
Penitentiaries.....	2,470	9,969,733	—	—	—	—	2,470	9,969,733	2	4,536
Labour.....	8,748	33,139,662	3	11,435	—	—	8,751	33,151,097	2,682	4,088,742
General Administration.....	538	2,467,872	—	—	—	—	538	2,467,872	19	24,438
Special Services.....	13	55,165	—	—	—	—	13	55,165	—	—
Vocational Training Co-ordination.....	12	95,942	—	—	—	—	12	95,942	—	—
Government Employees Compensation.....	20	87,639	—	—	—	—	20	87,639	—	—
Unemployment Insurance Commission.....	8,165	30,462,044	3	11,435	—	—	8,168	30,476,479	2,663	4,064,304
Legislation.....	938	2,938,610	6	7,009	—	—	944	2,945,619	—	—
The Senate.....	168	566,082	—	—	—	—	169	566,082	—	—
House of Commons.....	723	2,176,212	—	—	—	—	725	2,176,212	—	—
Library of Parliament.....	44	136,436	6	7,009	—	—	50	202,445	—	—
Mines and Technical Surveys⁴.....	2,542	13,414,791	76	322,147	53	263,363	2,671	14,000,231	—	—
Administration Services.....	207	1,006,865	2	37,641	—	—	200	1,018,936	—	—
Surveys and Mapping Branch.....	1,078	2,063,325	9	3,771	—	—	1,132	2,239,880	—	—
Geological Survey of Canada.....	486	2,062,561	2	30,830	—	—	495	2,225,381	—	—
Mines Branch.....	553	3,353,010	61	208,062	—	—	614	3,651,072	—	—
Geographical Branch.....	55	317,627	—	—	—	—	55	317,627	—	—
Dominion Observatories.....	118	789,515	3	12,342	—	—	121	771,837	—	—
General.....	27	120,835	—	—	—	—	27	120,835	—	—
Dominion Coal Board.....	18	100,993	—	—	—	—	18	100,993	—	—
National Defence.....	31,637	117,283,801	13,911	49,391,656	648	2,423,572	45,596	169,099,029	7,217	22,355,651
Departmental Administration.....	1,016	2,754,893	13	37,641	—	—	629	2,772,534	—	—
Inspection Services.....	1,193	5,070,332	46	169,828	—	—	1,239	5,240,160	—	—
Royal Canadian Navy.....	6,535	25,022,875	3,838	15,031,061	648	2,423,572	11,021	42,477,008	1,963	6,229,368
Canadian Army.....	11,608	41,098,300	4,861	18,144,284	—	—	16,469	59,242,384	1,873	6,885,893
Royal Canadian Air Force.....	8,508	30,129,699	4,908	15,047,304	—	—	13,476	46,177,003	3,228	8,693,796
Defence Research and Development.....	2,517	13,227,702	245	961,538	—	—	2,762	14,189,240	153	546,594
National Film Board.....	706	3,831,868	—	—	—	—	706	3,831,868	37	105,698
National Gallery of Canada.....	69	296,256	1	3,396	—	—	70	299,652	7	6,222
National Health and Welfare.....	4,054	16,282,221	555	1,140,414	4	16,215	4,613	17,448,880	221	602,475
Departmental Administration.....	322	1,320,763	6	13,990	—	—	328	1,334,753	—	—
National Health Branch.....	2,781	11,500,594	516	1,052,090	4	16,215	3,301	12,566,899	221	602,104
Welfare Branch.....	835	2,938,065	—	—	—	—	835	2,938,065	—	—
General.....	116	532,799	33	74,364	—	—	149	607,163	—	371

For footnotes, see end of table, p. 127.

6.—Federal Government Employees as at Mar. 31, 1961, and Regular Earnings for the Year Ended Mar. 31, 1961, classified by Department and Principal Branch or Service—concluded

Department and Branch or Service	Salaried		Prevailing Rate		Ships' Officers and Crews		Totals		Casuals and Others	
	Em- ployees	Regular Earnings	Em- ployees	Regular Earnings	Em- ployees	Regular Earnings	Em- ployees	Regular Earnings	Em- ployees	Regular Earnings
	No.	\$	No.	\$	No.	\$	No.	\$	No.	\$
National Research Council	2,496	13,710,239	—	—	—	—	2,496	13,710,239	582	2,869,548
National Revenue	14,178	64,892,903	9	32,218	6	24,348	14,193	64,949,469	—	—
Customs and Excise Divisions.....	7,532	34,413,179	9	31,142	6	24,348	7,547	34,468,669	—	—
Taxation Division.....	6,630	30,389,036	—	—	—	—	6,630	30,384,112	—	—
Tax Appeal Board.....	16	96,688	—	—	—	—	16	96,688	—	—
Northern Affairs and National Resources	2,345	11,332,320	2,255	6,416,349	—	—	4,630	17,748,679	1,293	3,002,728
Departmental Administration.....	178	777,259	—	—	—	—	178	777,259	—	—
Northern Co-ordination and Research.....	7	47,481	—	—	—	—	7	47,481	—	—
National Parks Branch.....	581	2,765,975	1,930	5,198,826	—	—	2,517	7,964,801	816	1,782,542
Water Resources Branch.....	201	1,078,010	6	15,348	—	—	207	1,093,358	21	75,284
Northern Administration Branch.....	777	3,624,237	287	893,611	—	—	1,064	4,517,848	402	1,054,383
Forestry Branch.....	435	2,321,793	61	304,239	—	—	496	2,626,032	53	74,569
National Museum of Canada.....	77	391,563	1	4,325	—	—	78	395,888	3	15,699
Canadian Government Travel Bureau.....	89	326,012	—	—	—	—	89	326,012	—	—
Post Office	25,795	95,645,678	25	148,105	—	—	25,820	95,793,783	502	894,872
Departmental Administration.....	318	1,470,638	—	—	—	—	318	1,470,638	—	—
Operations.....	25,003 ^s	92,169,789 ^a	25	148,105	—	—	25,028	92,317,894	502 ^e	894,872 ^e
Transportation.....	83	441,893	—	—	—	—	83	441,893	—	—
Financial Services.....	391	1,563,358	—	—	—	—	391	1,563,358	—	—
Privy Council	196	913,513	—	—	—	—	196	913,513	—	—
Privy Council Office.....	83	439,916	—	—	—	—	83	439,916	—	—
Prime Minister's Residence.....	5	18,847	—	—	—	—	5	18,847	—	—
Emergency Measures.....	61	359,030	—	—	—	—	61	359,030	—	—
Special.....	47	95,720	—	—	—	—	47	95,720	—	—
Public Archives and National Library	146	610,566	4	12,189	—	—	150	622,755	5	10,730
Public Archives.....	105	438,614	4	12,189	—	—	109	450,803	5	10,730
National Library.....	41	171,952	—	—	—	—	41	171,952	—	—
Public Printing and Stationery	642	2,615,705	1,225	4,920,562	—	—	1,867	7,536,267	6	6,896

Public Works	5,966	21,995,541	1,923	4,257,114	117	851,483	8,006	27,104,135	511	2,595,444
General Administration.....	1,436	7,651,087	—	—	—	—	1,436	7,651,087	5	8,919
Public Buildings Construction and Services.....	4,320	13,480,803	1,869	3,887,351	—	—	17,338,154	17,338,154	148	1,043,490
Harbours and Rivers Engineering Services.....	83	339,177	12	60,755	117	851,483	212	1,241,415	340	1,385,545
Development Engineering Services.....	127	554,474	42	319,008	—	—	169	873,482	18	157,490
Royal Canadian Mounted Police	7,804	32,107,002	—	—	—	—	7,804	32,107,002	—	—
Secretary of State	736	3,609,547	—	—	—	—	736	3,609,547	—	—
General Services.....	425	2,139,608	—	—	—	—	425	2,139,608	—	—
Patent and Copyright Office.....	311	1,469,939	—	—	—	—	311	1,469,939	—	—
Trade and Commerce	4,333	18,659,994	—	2,398	—	—	4,333	18,659,994	159	494,930
Departmental Administration.....	441	2,234,664	—	—	—	—	441	2,234,664	—	—
Trade Commissioner Service.....	517	2,164,194	—	—	—	—	517	2,164,194	—	—
Exhibitions Branch.....	40	201,345	—	—	—	—	40	201,345	51	198,460
Standards Branch.....	392	1,916,399	—	—	—	—	392	1,916,399	—	4,289
Dominion Bureau of Statistics.....	1,819	7,269,086	—	—	—	—	1,819	7,269,086	51	54,824
Board of Grain Commissioners.....	1,025	4,413,082	—	2,398	—	—	1,025	4,413,082	57	237,357
Special.....	60	255,805	—	—	—	—	60	255,805	—	—
National Energy Board.....	39	203,041	—	—	—	—	39	203,041	—	—
Transport	10,496	45,616,476	676	2,405,787	1,598	5,755,571	12,770	53,777,834	1,263	4,061,113
Departmental Administration.....	539	2,350,103	—	—	—	—	539	2,350,103	—	—
Canal Services.....	290	1,112,801	110	401,647	20	65,094	420	1,579,542	124	284,981
Marine Services.....	1,546	5,329,826	211	732,375	1,578	5,690,477	3,335	11,752,678	351	1,329,512
Railway and Steamship Services.....	8	28,605	—	—	—	—	8	28,605	—	—
Air Services.....	7,860	35,276,917	355	1,271,765	—	—	8,215	36,548,682	788	2,446,620
Air Transport Board.....	73	372,035	—	—	—	—	73	372,035	—	—
Board of Transport Commissioners for Canada.....	157	1,014,661	—	—	—	—	157	1,014,661	—	—
Canadian Maritime Commission.....	23	131,528	—	—	—	—	23	131,528	—	—
Veterans Affairs	11,537	45,014,118	1,966	3,792,685	—	—	13,503	48,737,903	—	—
Departmental Administration.....	584	2,079,617	—	—	—	—	584	2,079,617	—	—
District Services.....	619	2,432,312	—	—	—	—	619	2,432,312	—	—
Veterans Welfare Services.....	748	3,383,903	122	433,711	—	—	748	3,383,903	—	—
Treatment Services.....	8,148	29,710,910	1,840	3,027,923	—	—	9,088	32,738,832	—	—
Prosthetic Services.....	208	902,065	—	—	—	—	208	902,065	—	—
Veterans' Bureau.....	131	605,462	—	—	—	—	131	605,462	—	—
War Veterans Allowance Board.....	23	126,245	—	—	—	—	23	126,245	—	—
Canadian Pension Commission.....	365	1,999,541	—	—	—	—	365	1,999,541	—	—
Soldier Settlement and Veterans' Land Act.....	761	3,796,316	—	—	—	—	761	3,796,316	—	—
Grand Totals	160,282¹	656,047,336²	23,918	77,586,793	2,754	10,659,621	186,954	744,293,750	15,853	43,813,495

¹ Includes North Atlantic Treaty Organization and Canada's civilian participation as a member of the International Commission for Supervision and Control in Indo-China. ² Employees gradually being transferred from the Department of Agriculture and the Department of Northern Affairs and National Resources. ³ Office of the Secretary to the Governor General only; see footnote 7.

⁴ Excludes field parties—prevalent among employees. ⁵ Excludes field parties—prevalent among employees. ⁶ Excludes field parties—prevalent among employees. ⁷ Excludes the Governor General and 10 Lieutenant-Governors with earnings amounting to \$139,068; 320 judges, earning \$41,792,129; and 24 Ministers of the Crown, earning \$346,690.

Agency and Proprietary Corporations and Other Agencies.—The following are organizations owned by the Federal Government as at Mar. 31, 1961. Employees and earnings are shown by month in Table 7; a provincial distribution of employees and a summary of the total payroll in each of the three groups is given in Table 1, p. 117.

Agency Corporations

Atomic Energy of Canada Limited	Defence Construction (1951) Limited
Canadian Arsenals Limited	National Battlefields Commission
Canadian Commercial Corporation	National Capital Commission
Canadian Patents and Development Limited*	National Harbours Board
Crown Assets Disposal Corporation	Northern Canada Power Commission

Proprietary Corporations

Canadian Broadcasting Corporation	Export Credits Insurance Corporation
Canadian National Railways	Farm Credit Corporation
Canadian Overseas Telecommunication Corporation	Northern Transportation Company Limited
Central Mortgage and Housing Corporation	Polymer Corporation Limited
Cornwall International Bridge Company Limited	St. Lawrence Seaway Authority
Eldorado Aviation Limited	Trans-Canada Air Lines
Eldorado Mining and Refining Limited	

Other Agencies

Bank of Canada	Northern Ontario Pipe Line Crown Corporation
Canadian Wheat Board	Office of the Custodian
Industrial Development Bank	

7.—Employees and Earnings in Agency and Proprietary Corporations and Other Agencies, by Month, Years Ended Mar. 31, 1960 and 1961

Month	1959-60 ¹		1960-61	
	Employees	Earnings	Employees	Earnings
	No.	\$'000	No.	\$'000
April.....	133,605	47,385	138,870	51,566
May.....	138,869	50,281	142,556	53,758
June.....	143,315	51,683	146,039	54,489
July.....	146,514	54,563	148,528	55,836
August.....	146,063	53,066	148,879	56,963
September.....	144,878	52,477	146,200	54,161
October.....	141,491	52,055	143,104	53,626
November.....	147,555	53,594	139,591	51,966
December.....	143,528	53,413	135,984	51,532
January.....	140,534	51,914	134,455	51,265
February.....	140,739	51,211	132,820	48,956
March.....	140,726	52,202	134,609	52,114

¹ Employees abroad and their earnings included beginning November 1959. As an indication, there were 8,534 such employees at the end of March 1960 and earnings for the period November 1959 to March 1960 amounted to \$22,176,000.

Table 8 presents metropolitan area data on staff employed in departmental branches, services and corporations. The 15 metropolitan areas listed are those defined for purposes of the 1956 Census of population. Included are employees who work within the boundaries of the metropolitan areas; those residing within those areas but working outside are excluded.

* This organization is staffed by employees of the National Research Council.

8.—Federal Employees in Metropolitan Areas, by Sex, as at Mar. 31, 1961 and Earnings for March 1961

Area	Persons Employed at Mar. 31, 1961					Regular Earnings March 1961	
	Male	Female	Undis- tributed	Total	P.C. of Grand Total	Total	P.C. of Grand Total
	No.	No.	No.	No.		\$'000	
Metropolitan Areas—							
Ottawa, Ont.—Hull, Que.....	28,756	17,298	41	46,095	22.7	17,403	25.2
Montreal, Que.....	13,173	4,253	45	17,471	8.6	5,895	8.5
Toronto, Ont.....	10,464	4,276	389	15,129	7.5	4,750	6.9
Halifax, N.S.....	7,475	1,758	123	9,356	4.6	3,019	4.4
Vancouver, B.C.....	6,209	2,286	33	8,528	4.2	2,964	4.3
Winnipeg, Man.....	4,590	1,764	18	6,372	3.1	2,174	3.1
Victoria, B.C.....	4,140	1,086	2	5,228	2.6	1,938	2.8
Edmonton, Alta.....	3,212	1,422	4	4,638	2.3	1,568	2.3
Quebec, Que.....	3,092	890	41	4,023	2.0	1,313	1.9
London, Ont.....	2,608	1,234	18	3,860	1.9	1,241	1.8
Calgary, Alta.....	2,192	774	42	3,008	1.5	1,009	1.5
St. John's, Nfld.....	1,834	312	3	2,149	1.1	664	1.0
Saint John, N.B.....	1,198	543	128	1,869	0.9	594	0.9
Hamilton, Ont.....	1,204	409	9	1,622	0.8	571	0.8
Windsor, Ont.....	1,067	187	14	1,268	0.6	455	0.7
Totals, Metropolitan Areas.....	91,214	38,492	910	130,616	64.4	45,558	66.1
Non-metropolitan Areas—							
In Canada.....	53,730	12,708	3,170	69,608	34.3	22,614	32.8
Outside Canada.....	1,473	1,110	—	2,583	1.3	784	1.1
Totals, Non-metropolitan Areas.....	55,203	13,818	3,170	72,191	35.6	23,398	33.9
Grand Totals.....	146,417	52,310	4,080	202,807	100.0	68,956	100.0

PART V.—CANADA'S EXTERNAL RELATIONS*

Canada's Status in the Commonwealth.—The Imperial Conference held in London in 1926 marked a turning point in the history of the then British Empire and was an important step in the evolution from an Empire to a Commonwealth. At the 1926 Conference the self-governing countries, consisting of Britain and the Dominions, were described as being "autonomous countries within the British Empire, equal in status, in no way subordinate one to another in any aspect of their domestic or external affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations". The Governors General of the Dominions were recognized as having in all essential respects the same constitutional position as the Crown in Britain. It was also stated by the Conference that "it is the right of the Government of each Dominion to advise the Crown in all matters relating to its own affairs". Subsequent to this important meeting, Canada's stature and status in the international community continued to grow. It exercised the powers of treaty-making and established its own diplomatic missions overseas. The Statute of Westminster in 1931 provided more explicit recognition of the principles of equality of status by removing the remaining limitations on the legislative autonomy of Commonwealth countries. As a further development of Canada's independent position, all legal cases started in Canada after Dec. 23, 1949 can no longer be appealed to the Privy Council in London. The Supreme Court of Canada has become, therefore, the final court of appeal for all Canadian legal cases. Talks have been held recently between the federal Minister of Justice and the provincial Attorneys General with a view to planning a program to give Canada the sole right of amending its own Constitution—now an Act of the British Parliament, entitled "The British North America Act of 1867"—and the Government has announced that it intends to introduce legislation to this end in due course.

* Prepared by the Department of External Affairs, Ottawa.

Canada's International Status.—The growth of Canada's international status is reflected in the development of the Department of External Affairs. A review of the organization and development of that Department is given in the 1952-53 Year Book, pp. 101-104; a brief outline is given at p. 95 of this volume.

The following Section 1 covers Canadian diplomatic representation abroad and representation of other countries in Canada. Section 2 deals with Canada's main international activities during 1961 with respect specifically to the Commonwealth, the United Nations, and the North Atlantic Treaty Organization. International economic aid programs are covered separately. Although these fields are considered to be the most significant for the purposes of this publication, it should be noted that Canada's activities in other areas are also of importance. The *External Affairs Monthly Bulletin** covers all activities of the Department on a detailed, monthly basis.

* Obtainable from the Queen's Printer, Ottawa, \$1 per year.

Section 1.—Diplomatic Representation as at Jan. 31, 1962

NOTE.—Changes in this listing subsequent to Jan. 31, 1962 and names of current representatives are given in *Canada Representatives Abroad and Representatives of Other Countries in Canada*, published thrice yearly and obtainable from the Queen's Printer, Ottawa, price 35 cents per copy.

1.—Canadian Representation Abroad

Country and Year Representation Established	Present Status of Representative	Address
Argentina.....1941	Ambassador.....	Bartolomé Mitre, 478, Buenos Aires
Australia.....1939	High Commissioner.....	State Circle, Canberra
Austria.....1952	Ambassador.....	Karntnering 5, Vienna
Belgium.....1939	Ambassador.....	35, rue de la Science, Brussels
Bolivia.....1961	*Ambassador.....	c/o Canadian Embassy, Edificio Boza Carabaya 831, Plaza San Martín, Lima, Peru
Brazil.....1941	Ambassador.....	Avenida Presidente Wilson, 165, Rio de Janeiro
Britain.....1880	High Commissioner.....	Canada House, Trafalgar Square, London, S.W. 1
Burma.....1958	*Ambassador.....	c/o Office of the High Commissioner for Canada, Kuala Lumpur, Malaya (P.O. Box 990)
†Cameroun.....1962	Ambassador.....	6 Gregory's Road, Cinnamon Gardens, Colombo
Ceylon.....1953	High Commissioner.....	Augustinas 1225, 5th Floor, Santiago
Chile.....1942	Ambassador.....	Carrera 10, 16-92, 8th Floor, (P.O. Box Apartado 1618) Bogota
Colombia.....1953	Ambassador.....	4th Floor, Edificio Banco Anglo Costarri- cense Avenida 2 y Calle 3, San José
Costa Rica.....1961	Ambassador.....	Edificio Ingenieros Civiles, Calle 17 y O, Vedado, Havana
Cuba.....1945	Ambassador.....	c/o Canadian Embassy, Farmers' Building, 8 Rehov Kaplan, Tel Aviv, Israel
Cyprus.....1961	*High Commissioner.....	Mickiewiczova 6, Prague 6
Czechoslovakia.....1943	Minister.....	Prinsesse Maries Allé 2, Copenhagen
Denmark.....1946	Ambassador.....	Edificio Copello, 408 Calle El Conde, Santo Domingo
Dominican Republic.....1954	Ambassador.....	Edificio I.C.S.A., 120 Diagonal Seminario Menor y Avenida 10 de Agosto, 3rd Floor, Quito
Ecuador.....1961	Ambassador.....	c/o Canadian Embassy, 4th Floor, Edificio Banco Anglo Costarricense Avenida 2 y Calle 3, San José, Costa Rica
El Salvador.....1962	*Ambassador.....	Pormestarin rinne 3C, Helsinki
Finland.....1949	Ambassador.....	35, avenue Montaigne, Paris VIII
France.....1928	Ambassador.....	Zitelmannstrasse 22, Bonn
Germany.....1950	Ambassador.....	E 115/3 Independence Avenue (Dodowah Road), Accra
Ghana.....1957	High Commissioner.....	31, Avenue Vassiliassis Sofias, Athens
Greece.....1943	Ambassador.....	5a Avenida 11-70, Zona 1, Guatemala City
Guatemala.....1961	Ambassador.....	Route du Canapé Vert, St. Louis de Turgeau, Port-au-Prince
Haiti.....1954	Ambassador.....	

* Dual accreditation; representative not resident in the country.

† New Mission, not yet established at Jan. 31, 1962.

1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Honduras.....1961	*Ambassador.....	c/o Canadian Embassy, 4th Floor, Edificio Banco Anglo Costarricense Avenoa 2 y Calle 3, San José, Costa Rica
Iceland.....1949	*Ambassador.....	c/o Canadian Embassy, Fridtjof Nansens Plass 5, Oslo, Norway
India.....1947	High Commissioner.....	4 Aurangzeb Road, New Delhi
Indonesia.....1953	Ambassador.....	Djalan Budi Kenulialan No. 6, Djakarta
Iran.....1958	Ambassador.....	Avenue Anatole France coin du Bd Queen Elizabeth II, Tehran
Iraq.....1961	*Ambassador.....	c/o Canadian Embassy, Immeuble Alpha, rue Clémenceau, Beirut, Lebanon
Ireland.....1940	Ambassador.....	92 Merrion Square West, Dublin
Israel.....1953	Ambassador.....	Farmers' Bldg., 8 Rehov Kaplan, Tel Aviv
Italy.....1947	Ambassador.....	Via G.B. de Rossi 27, Rome
Japan.....1929	Ambassador.....	16 Omote-Machi, 3-Chome, Akasaka, Minato-ku, Tokyo
Lebanon.....1954	Ambassador.....	Immeuble Alpha, rue Clémenceau, Beirut
Luxembourg.....1945	*Ambassador.....	c/o Canadian Embassy, 35, rue de la Science, Brussels, Belgium
Malaya.....1958	High Commissioner.....	Kuala Lumpur (P.O. Box 990)
Mexico.....1944	Ambassador.....	Melchor Ocampo 463-7, Mexico 5, D.F.
Netherlands.....1939	Ambassador.....	5 and 7 Sophialaan, The Hague
New Zealand.....1940	High Commissioner.....	Government Life Insurance Bldg., Custom-house Quay, C.I. Wellington
Nicaragua.....1961	*Ambassador.....	c/o Canadian Embassy, 4th Floor, Edificio Banco Anglo Costarricense Avenoa 2 y Calle 3, San José, Costa Rica
Nigeria.....1960	High Commissioner.....	New Barclays Bank Bldg., 40 Marina Drive, Lagos
Norway.....1943	Ambassador.....	Fridtjof Nansens Plass 5, Oslo
Pakistan.....1950	High Commissioner.....	Metropole Hotel, Victoria Road, Karachi
Panama.....1961	*Ambassador.....	c/o Canadian Embassy, 4th Floor, Edificio Banco Anglo Costarricense Avenoa 2 y Calle 3, San José, Costa Rica
Peru.....1944	Ambassador.....	Edificio Boza, Carabaya 831, Plaza San Martin, Lima
Poland.....1943	Ambassador.....	31 Ulica Katowicka, Saska Kepa, Warsaw
Portugal.....1952	Ambassador.....	Rua Marques da Fronteira No. 8, Lisbon
Sierra Leone.....1961	*High Commissioner.....	c/o Office of High Commissioner for Canada, 4th Floor, New Barclays Bank Bldg., 40 Marina, Lagos, Nigeria
South Africa.....1940	Ambassador.....	Suite 66, Kerry Bldg., 238 Vermeulen St., Pretoria
Spain.....1953	Ambassador.....	Edificio España, Plaza de España 2, Madrid
Sudan.....1961	*Ambassador.....	c/o Canadian Embassy, 6 Sharia Roustom Pasha, Garden City, Cairo, U.A.R.
Sweden.....1947	Ambassador.....	Strandvagon 7-C, Stockholm
Switzerland.....1947	Ambassador.....	88 Kirchenfeldstrasse, Berne
†Tanganyika.....1962	High Commissioner.....	—
Thailand.....1961	*Ambassador.....	c/o Kuala Lumpur (P.O. Box 990), Malaya
Tunisia.....1961	*Ambassador.....	c/o Canadian Embassy, 88 Kirchenfeldstrasse, Berne, Switzerland
Turkey.....1947	Ambassador.....	Ahmet Agaoglu Sokagi, No. 32, Cankaya, Ankara
Union of Soviet Socialist Republics.....1943	Ambassador.....	23 Starokonyushenny Pereulok, Moscow
United Arab Republic.....1954	Ambassador.....	6 Sharia Roustom Pasha, Garden City, Cairo
United States of America.....1927	Ambassador.....	1746 Massachusetts Ave. N.W., Washington, D.C.
Uruguay.....1952	Ambassador.....	1409 Avenida Agraciada, Piso 7, Montevideo
Venezuela.....1952	Ambassador.....	Avenida La Estancia No. 10, Caracas
West Indies.....1958	Commissioner.....	Colonial Bldg., 72 South Quay, Port-of-Spain, Trinidad
Yugoslavia.....1943	Ambassador.....	Proliterskih Brigada 69, Belgrade
Other Missions		
Canadian Military Mission...1946	Head of Mission.....	Perthshire Block, Olympic Stadium, Headquarters Berlin (British Sector)

* Dual accreditation; representative not resident in the country.

† New Mission, not yet established at Jan. 31, 1962.

1.—Canadian Representation Abroad—concluded

Country and Year Representation Established	Present Status of Representative	Address
Other Missions—concluded		
Delegation of Canada to the North Atlantic Council.....1952	Permanent Representative and Ambassador.	Place du Maréchal de Lattre de Tassigny, Paris XVI, France
Organization for Economic Co- operation and Development.....1961	Acting Permanent Representa- tive.	Place du Maréchal de Lattre de Tassigny, Paris XVI, France
Mission of Canada to European Communities.....1960	Representative and Amba- sador.	35, rue de la Science, Brussels 4
Permanent Delegation of Can- ada to the United Nations 1948	Permanent Representative.....	750 Third Ave., New York, N.Y.
Permanent Delegation of Can- ada to European Office of the United Nations.....1948	Permanent Representative.....	16, Parc du Chateau Banquet, Geneva
Consulates		
Brazil.....1947	Consul.....	Rua 7 de Abril 252, São Paulo
Congo.....1960	Consul General.....	Edifice C.C.C.I. Blvd. Albert 1 ^{er} , Leopold- ville
Germany.....1956	Consul.....	Ferdinandstrasse 69, Hamburg
Republic of the Philippines.....1949	Consul General.....	Third Floor, L & S Bldg., 1414 Dewey Blvd., Manila
United States of America.....1948	Consul General.....	607 Boylston St., Boston 16, Mass.
“.....1947	Consul General.....	Suite 1412, Garland Bldg., 111 North Wa- bash Ave., Chicago, Ill.
“.....1948	Consul.....	1139 Penobscot Bldg., Detroit 26, Mich.
“.....1953	Consul General.....	510 W. Sixth St., Los Angeles 14, Cal.
“.....1952	Consul General.....	215 International Trade Mart, New Orleans 12, La.
“.....1943	Consul General.....	680 Fifth Ave., New York, N.Y.
“.....1947	Honorary Vice-Consul.....	443 Congress St., Portland, Me.
“.....1948	Consul General.....	400 Montgomery St., San Francisco 4, Cal.
“.....1953	Consul General.....	1407 Tower Bldg., 7th Ave. at Olive Way, Seattle 1, Wash.
“.....1961	Consul.....	3 Penn Center Plaza, Philadelphia 2, Pa.

2.—Representation of Other Countries in Canada

Country and Year Representation Established	Present Status of Representative	Address
Argentina.....1941	Ambassador.....	211 Stewart St., Ottawa
Australia.....1940	High Commissioner.....	90 Sparks St., Ottawa
Austria.....1952	Ambassador.....	Room 401, 85 Range Road, Ottawa
Belgium.....1937	Ambassador.....	168 Laurier Ave. E., Ottawa
Brazil.....1941	Ambassador.....	305 Stewart St., Ottawa
Britain.....1928	High Commissioner.....	Earncliffe, Ottawa
Burma.....1953	Ambassador.....	c/o Embassy of Burma, 2300 South St. N.W., Washington 8, D.C., U.S.A.
Ceylon.....1957	High Commissioner.....	448 Daly Ave., Ottawa
Chile.....1942	Ambassador.....	Ste. 216, 56 Sparks St., Ottawa
China.....1942	Ambassador.....	201 Wurttemberg St., Ottawa
Colombia.....1953	Ambassador.....	Apt. 33, The Roxborough, Ottawa
Cuba.....1945	Ambassador.....	85 Range Road, Apt. 708, Ottawa
Czechoslovakia.....1942	Minister.....	171 Clemow Ave., Ottawa
Denmark.....1946	Ambassador.....	446 Daly Ave., Ottawa
Dominican Republic.....1954	Ambassador.....	Apt. 501, 85 Range Road, Ottawa
Ecuador.....1961	Ambassador.....	Chateau Laurier Hotel, Ottawa
Finland.....1948	Ambassador.....	85 Range Road, Ottawa
France.....1928	Ambassador.....	42 Sussex Drive, Ottawa
Germany.....1951	Ambassador.....	1 Waverley St., Ottawa
Ghana.....1961	High Commissioner.....	Fuller Bldg., 75 Albert St., Ottawa
Greece.....1942	Ambassador.....	Chateau Laurier Hotel, Ottawa
Guatemala.....1961	Ambassador.....	2220 R. St. N.W., Washington 8, D.C., U.S.A.
Haiti.....1954	Ambassador.....	150 Driveway, Apt. 111, Tiffany Apart- ments, Ottawa
Iceland.....1948	Ambassador.....	c/o Embassy of Iceland, 1906 23rd St. N.W., Washington, D.C., U.S.A.

2.—Representation of Other Countries in Canada—concluded

Country and Year Representation Established	Present Status of Representative	Address
India.....1947	High Commissioner.....	200 MacLaren St., Ottawa
Indonesia.....1953	Ambassador.....	275 MacLaren St., Ottawa
Iran.....1956	Ambassador.....	Apt. 502, 85 Range Road, Ottawa
Iraq.....1961	Ambassador.....	1801 P St. N.W., Washington 8, D.C., U.S.A.
Ireland.....1939	Ambassador.....	The Roxborough, Ottawa
Israel.....1953	Ambassador.....	45 Powell Ave., Ottawa
Italy.....1947	Ambassador.....	172 MacLaren St., Ottawa
Japan.....1928	Ambassador.....	75 Albert St., Ottawa
Lebanon.....1955	Ambassador.....	The Roxborough, Ottawa
Luxembourg.....1950	Ambassador.....	c/o Embassy of Luxembourg, 2200 Massachussets Ave. N.W., Washington 8, D.C., U.S.A.
Mexico.....1944	Ambassador.....	88 Metcalfe St., Ottawa
Netherlands.....1939	Ambassador.....	12 Marlborough Ave., Ottawa
New Zealand.....1942	High Commissioner.....	77 Metcalfe St., Ottawa
Norway.....1942	Ambassador.....	140 Wellington St., Ottawa
Pakistan.....1949	High Commissioner.....	505 Wilbrod St., Ottawa
Peru.....1944	Ambassador.....	539 Island Park Drive, Ottawa
Poland.....1942	Ambassador.....	10 Range Road, Ottawa
Portugal.....1952	Ambassador.....	285 Harmer Ave., Ottawa
South Africa.....1938	Ambassador.....	9 Rideau Gate, Ottawa
Spain.....1953	Ambassador.....	149 Daly Ave., Ottawa
Sweden.....1943	Ambassador.....	140 Wellington St., Ottawa
Switzerland.....1946	Ambassador.....	5 Marlborough Ave., Ottawa
Tunisia.....1957	Ambassador.....	Chateau Laurier Hotel, Ottawa
Turkey.....1944	Ambassador.....	197 Wurttemberg St., Ottawa
Union of Soviet Socialist Republics.....1942	Ambassador.....	285 Charlotte St., Ottawa
United Arab Republic.....1954	Ambassador.....	The Roxborough, Ottawa
United States of America.....1927	Ambassador.....	100 Wellington St., Ottawa
Uruguay.....1948	Chargé d'Affaires <i>ad interim</i>	The Roxborough, Ottawa
Venezuela.....1953	Ambassador.....	The Roxborough, Ottawa
Yugoslavia.....1942	Ambassador.....	12 Blackburn Ave., Ottawa

Section 2.—International Activities, 1961

Subsection 1.—Canada and Commonwealth Relations

Membership in the Commonwealth is one of the cornerstones upon which Canadian foreign policy is built, for Canada supports the extension and development of a strong Commonwealth of Nations and believes that no other association throughout the world has a greater influence for good. Commonwealth membership allows Canada to enjoy an especially close, if perhaps undefinable, relationship with a group of important nations which, despite a diversity of ethnic, economic, racial, religious, cultural and political backgrounds, find usefulness in shared ideals and traditions. Exchanges taking place between Commonwealth countries are characterized by a readiness to understand, if not always to agree. Consultations and exchanges of views are the very lifeblood of the Commonwealth; these exchanges are continuous, not only in the capitals of Commonwealth countries but in other capitals, at the United Nations, and at international gatherings.

Besides these continuing consultations at many levels, several special Commonwealth meetings were held in 1961. The Prime Ministers of the Commonwealth met in London in March, the latest of a series of Prime Ministers' Meetings which have been held at intervals since the end of the Second World War. This Meeting was of particular importance as the question of South African membership was considered—a subject of vital interest, the treatment of which was keenly watched throughout the world. The decision of South Africa not to apply for readmission after it had become a Republic was made after its representatives had heard the views of other Commonwealth leaders. The decision can be said to have marked a turning point in Commonwealth relations. This development emphasized the present position of the Commonwealth as an association based on the

principles of equality of colour, race and creed. In September, the Finance and Trade Ministers of the Commonwealth travelled to Accra where they met as the Commonwealth Economic Consultative Council to discuss problems of mutual interest in the economic and financial fields. This Meeting had a particular significance in view of the application to join the European Economic Community made by the British Government. Commonwealth countries spent the last months of the year assessing the effects that British membership in the EEC would have on their respective economic positions and on the Commonwealth as a whole. Among others, Canada expressed concern over the British entry to the EEC and the year closed with feelings of uncertainty among the members over this aspect of Commonwealth relationships.

During 1961 there was an important increase in the membership of the Commonwealth. At the Prime Ministers' Meeting in March, Cyprus applied for and was admitted to membership. A month later, on Apr. 27, Sierra Leone became independent within the Commonwealth and was joined on Dec. 9 by another African State—Tanganyika—whose Prime Minister, Mr. Julius Nyerere, stated his faith in the Commonwealth association in the following words: "Past associations are now behind us; but for the future we are linked with you in the light but enduring bonds which have made the Commonwealth of Nations so potent a force for goodwill and common sense in a world that sorely feels the want of both. I am indeed glad that this should be so." Canada already had High Commissioners accredited to Cyprus and Sierra Leone and announced on Dec. 8 that a Canadian High Commission would be established at Dar-es-Salaam (Tanganyika) early in 1962.

Canada's overseas aid for under-developed countries continued to be directed, in the main, to Commonwealth countries through the Colombo Plan, the Canada-West Indies Aid Programme and the Special Commonwealth African Aid Programme (SCAAP). Canada's total contribution under the Colombo Plan since the Plan's inception exceeds \$330,000,000; the aid to the West Indies is expected to reach some \$10,000,000 over the period 1958-63 and Canada has pledged aid to Commonwealth countries in Africa through SCAAP to a total of \$10,500,000 for the period 1960-63.

Canada is also an active participant in the Commonwealth Scholarship and Fellowship Plan. At the end of 1961 there were approximately 200 Commonwealth students in Canada under this Plan and many Canadians were studying in other Commonwealth countries. Canada has also played a significant part in the training and provision of teachers for service in Commonwealth countries and has assisted in plans for co-operation in technical education.

Commonwealth visitors to Canada during the year included the Prime Minister of Britain, the Rt. Hon. Harold Macmillan; the Premier of British Guiana, Dr. the Hon. Cheddi Jagan; the Premier of the Western Region of Nigeria, the Hon. Chief S. L. Akintola; the Deputy Prime Minister of New Zealand, the Hon. J. R. Marshall; the Foreign Minister of Ghana, the Hon. Ako Adjei; the Minister of Finance of Nigeria, the Hon. Chief F. S. Okotie-Eboh; and two of Sierra Leone's Cabinet Ministers, the Hon. H. M. Mustapha and the Hon. A. Margai.

Subsection 2.—Canada and the United Nations

Although the 16th session of the General Assembly met under the shadow of the Secretary-General's tragic death and in the uneasy atmosphere of resumed nuclear testing by the Soviet Union, of continued conflict in the Congo and of glowering crisis in Berlin, positive steps were taken in many fields. At the end of the year the United Nations seemed to have emerged from a particularly trying period with renewed confidence in its capacity to face the future. The most urgent task before the Assembly was the appointment of a successor to Mr. Hammarskjöld, a task complicated by Soviet insistence on a "troika"

reform of the office of the Secretary-General. After intensive behind-the-scenes negotiations, the Security Council recommended the appointment of the Permanent Representative of Burma to the United Nations, U Thant, as Acting Secretary-General for the unexpired portion of Mr. Hammarskjöld's term. A resolution to this effect was adopted unanimously by the General Assembly on Nov. 3.

At the 16th session, Canada took the lead in focusing world attention on the hazards created by increasing levels of fallout from atmospheric explosions. The Assembly unanimously adopted a Canadian resolution calling for a new program for measuring the incidence of radioactive fallout and endorsing the view that principles of international law and concern for the future of mankind impose responsibilities on any State whose actions increase the level of radioactive fallout. Canada also gave active support to resolutions calling for the cessation of nuclear tests and co-sponsored an appeal to the Soviet Union not to carry out its intention to explode a 50-megaton nuclear bomb.

In the field of disarmament, Canada underlined the desirability of an expansion of the ten-power disarmament negotiating body, of which Canada is a member, to include new members representing the main geographical areas of the world. A resolution reflecting United States-Soviet Union agreement along these lines was approved unanimously by the Assembly. The Assembly had previously agreed on a set of principles to guide the negotiations which are expected to re-open early in 1962.

On the question of outer space, Canada co-sponsored a resolution endorsing the principle that international law, including the United Nations Charter, applies to outer space and celestial bodies and that, while outer space is open for exploration and use by all States, it is not subject to national appropriation. This resolution, which won unanimous approval, also set the stage for international co-operation in the peaceful uses of outer space, particularly in the telecommunications and meteorological fields.

In the economic sphere, Canada secured the adoption of its proposal for a world food bank which had been put forward by the Canadian Prime Minister at the General Assembly in 1960.

At the second half of the 15th session in the spring of 1961, Canada had taken the initiative to focus Assembly attention on the growing financial difficulties facing the organization. At the 16th session, the Assembly took extraordinary steps to deal with these acute problems, resulting in the main from the heavy costs of the peace-keeping operations. Canada took a lead in securing the adoption of a resolution seeking an advisory opinion from the International Court of Justice on the question of the legal obligations of members to contribute to the costs of United Nations operations in the Middle East and the Congo. Canada also co-sponsored a second resolution authorizing the Secretary-General to issue bonds in the amount of \$200,000,000 to be repaid from the regular budget over a period of 25 years. The proceeds from the bond issue will be used to meet the growing cash deficit of the United Nations. Canada's attitude on these questions reflects its interest in developing the peace-keeping role of the United Nations and in establishing a sound financial basis whereby the burden carried by Canada and other nations participating in peace-keeping activities will be equitably shared by the whole membership of the United Nations.

Unable to complete all of the items on its agenda, the Assembly adjourned on Dec. 20, after a decision to resume its work on Jan. 15, 1962 with an agenda including Angola, Ruanda Urundi, British Guiana, Southern Rhodesia and the Cuban complaint against the United States.

Canada's membership on subsidiary organs of the General Assembly was, in 1961, augmented by the election to the International Law Commission of Mr. Marcel Cadieux, Deputy Under-Secretary of State for External Affairs. He is the first Canadian to receive this honour, reflecting interest in Canada's distinctive position vis-à-vis two great legal systems of the world.

Although not a member of any of the Councils of the United Nations in 1961, Canada followed their progress with close attention. The Security Council held 68 meetings during the year, of which 27 were devoted to the situation in the Congo. A resolution of Feb. 21 authorized the Secretary-General to use force, if necessary, as a last resort to prevent civil war; it also called for the withdrawal of foreign mercenaries and political advisers. When, after a period of protracted struggle, the Congo was again discussed in November, the Security Council passed a resolution authorizing the use of force, if necessary, to apprehend foreign mercenaries. (Efforts toward conciliation in the Congo were also continued by the Congo Advisory Committee.)

Eleven meetings of the Security Council were devoted to the situation in Angola, six to the Tunisian complaint on Bizerte, four to the complaint of Kuwait and the counter complaint of Iraq, three to the Cuban complaint against the United States, three to the Cuban complaint about "imminent armed intervention" by the United States in the Dominican Republic, three to a Jordanian complaint against Israel, two to the Portuguese complaint against India in connection with Gôa, and one private meeting each to the appointment of an Acting Secretary-General and to the report of the Security Council to the 16th session of the General Assembly.

The Security Council also recommended the admission of Sierra Leone, Mauretania, Outer Mongolia and Tanganyika to the United Nations. With the resumption by Syria of the seat it had vacated to join with Egypt in the United Arab Republic, membership in the United Nations stood at 104 at the end of the year.

During 1961, the membership of the Security Council was as follows: Permanent Members—China, France, Britain, the United States and the Union of Soviet Socialist Republics; Non-permanent Members—Ceylon, Chile, Ecuador, Liberia, Turkey and the United Arab Republic. On Jan. 1, 1962, Ghana, Venezuela and Romania replaced Ceylon, Ecuador and Turkey. In accordance with an agreement reached in 1960, Liberia resigned its seat on Dec. 31, 1961, and was replaced by Ireland.

The Economic and Social Council (ECOSOC) continued its active role in promoting international co-operation in the economic and social fields. Specifically, regional matters were considered in detail by the Economic Commissions for Europe (ECE), for Asia and the Far East (ECAFE), for Latin America (ECLA) and for Africa (ECA). ECOSOC had, moreover, reports from its Social Commission and its other functional commissions on Narcotic Drugs, International Commodity Trade, the Status of Women, Population, Statistics, Transport and Communications, Human Rights and Social Conditions. At the end of 1961 Canada was a member of the first three of these functional bodies.

Canada is also a member of the Governing Council of the United Nations Special Fund, a new international assistance program intended to enlarge the scope of existing United Nations activities in such fields as surveys of water, mineral and potential power resources, the establishment of institutions of public administration, statistics and technology, and the development of centres for agricultural and industrial research.

The Trusteeship Council, of which Canada has never been a member, completed a year of close supervision of the administration of agreements between the United Nations and those member States that have responsibility for trust territories. Intended to comprise administering trust territories and an equal number of non-administering States, including permanent members of the Security Council not represented in the first group, the Council had an unbalanced membership in 1961. With the retirement of Burma, Paraguay and the United Arab Republic, the Council will regain a balanced membership of ten during 1962 (five administering authorities—Australia, Belgium, New Zealand, Britain and the United States; and five non-administering members—China, France, the U.S.S.R., Bolivia and India).

By the end of 1961, only four of the original eleven trust territories remained under the jurisdiction of the Council—New Guinea, Nauru, the Pacific Islands, and Ruanda Urundi. During the course of the year, three trust territories—the British Cameroons, Tanganyika and Western Samoa—achieved their independence. Tanganyika became the

104th member of the United Nations. By plebiscites in the British Cameroons, the Northern and Southern portions voted to join the Federation of Nigeria and the Republic of Cameroun, respectively. It is expected that Ruandi Urundi will achieve independence in 1962; conditions in that territory were of live concern to the Council and the administering authority (Portugal) at the 16th session of the Assembly.

Canadian Financial Contributions to the United Nations.—Canada's assessed share of the costs of United Nations peace-keeping operations in the Congo and the Middle East amounted to approximately \$4,300,000 in 1961. Canada's share of the remaining expenses of the United Nations in 1961 was 3.1 p.c. of a net budget of \$60,700,000 or some \$1,900,000 with an additional amount of approximately \$2,000,000 going to the regular assessed budgets of the various Specialized Agencies and the International Atomic Energy Agency.

A number of voluntary programs of assistance are carried on by the United Nations and its Specialized Agencies to which Canada contributed the following in 1961:—

	\$
Expanded Programme of Technical Assistance (EPTA).....	2,000,000 (U.S.)
United Nations Children's Fund (UNICEF).....	650,000 (Can.)
United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), including \$1,500,000 worth of wheat flour.....	2,000,000 (Can.)
United Nations High Commissioner for Refugees (UNHCR).....	290,000 (Can.)
Special Fund.....	2,000,000 (U.S.)

As a special contribution to World Refugee Year, Canada had by the end of 1961 admitted three groups of tubercular refugees totalling with their families 826 persons of whom 325 were tubercular. By June of 1961, only 43 of these refugees still remained in sanatoria. Voluntary donations from private citizens to WRY totalled more than \$2,500,000.

Specialized Agencies.—Canada is a member of each of the twelve Specialized Agencies of the United Nations. These Agencies are bodies with wide international responsibilities established by intergovernmental agreement which act in relationship with the United Nations in order to carry out the terms of the Charter. Co-ordination of the activities of the Specialized Agencies is promoted by the Administrative Committee on Co-ordination established by the Economic and Social Council.

Canada is also a member of the International Atomic Energy Agency which, while not a Specialized Agency, plans its activities with them and co-operates in its work with the Administrative Committee on Co-ordination.

The Food and Agriculture Organization.—The Food and Agriculture Organization (FAO) came into being in 1945, the first Conference being held in that year in Quebec City. The objectives of the organization are to raise the levels of nutrition and living standards of its members and to improve the techniques of the production and distribution of food and agricultural, fisheries and forestry products. To this end, the FAO Secretariat collects, analyses and distributes technical and economic information and encourages appropriate national and international action.

A 25-member Council, of which Canada has been a member since 1945, meets twice a year to give direction and policy guidance to the Secretariat; the FAO Conference, which is the governing body of the organization, meets every other year. Headquarters are in Rome, Italy, where the 11th Conference took place late in 1961.

Canada has participated actively in FAO activities and is a member of the Council the Committee on Commodity Problems (CCP), the Consultative Sub-Committee on Surplus Disposal, the FAO Group on Grains, the North American Forestry Commission and

other FAO bodies. A number of Canadians are on the staff at Rome headquarters, and many Canadians have undertaken assignments under FAO technical assistance programs. Canadian membership in the organization is provided for by an Act of the Canadian Parliament passed in 1945. A committee of officials from Canadian Government Departments (the Canadian Interdepartmental FAO Committee) has been established to maintain liaison between the FAO Secretariat and the Canadian Government.

The United Nations Educational, Scientific and Cultural Organization.—The United Nations Educational, Scientific and Cultural Organization (UNESCO) was established in 1946 "to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law, for human rights and fundamental freedoms".

Total membership in the Organization includes 101 States and four associate members. The Organization is made up of three principal organs—the General Conference, which is the policy-making body, the Executive Board and the Secretariat. Representatives from member States make up the General Conference which meets every two years to consider applications for membership, elect the Executive Board, plan the program and approve the budget for the ensuing two-year period. The latest General Conference was held at the Headquarters of the Organization in Paris in November and December 1960. (See also Sect. 5 of Part II of the Education and Research Chapter of this volume.)

International Bank for Reconstruction and Development.—The International Bank for Reconstruction and Development (IBRD) was formed at the same time as the International Monetary Fund for three main purposes: (1) to facilitate the investment of capital for productive purposes; (2) to promote private foreign investment by means of guarantees or of participation in loans by private investors; and (3) to make loans where private capital is not available on reasonable terms. From its inception to June 30, 1961, the Bank has made 292 loans in some 57 member countries and territories. The cumulative total of Bank loans, net of cancellations and refundings, was \$5,669,000,000 as of June 30, 1961, of which \$4,320,000,000 had been disbursed by that date. Of the latter amount \$1,452,000,000 had been repaid to the Bank or sold to other investors. The effective loans held by the Bank at June 30 stood at \$3,996,000,000. Canada's subscription to the Bank was raised from \$375,000,000 to \$750,000,000 in 1959.

International Civil Aviation Organization.—The International Civil Aviation Organization (ICAO), with headquarters in Montreal, is the only Specialized Agency of the United Nations with headquarters in Canada. Canada has been a member of the 21-nation Council, which has sat in almost continuous session in Montreal, since ICAO was provisionally established in 1945. At a Special Assembly of ICAO held in June 1961, there was drawn up a Protocol of Amendment to the ICAO Convention which, if ratified by a required number of Member Nations, will raise the size of Council to 27. Canada has already ratified the Protocol.

The International Development Association.—The International Development Association came into being on Sept. 26, 1960 as an affiliate of the IBRD and commenced operations on Nov. 8, 1960. It seeks to promote economic development, increase productivity and raise standards of living in the less-developed areas covered by the Association's membership. It does this by providing loans to the less-developed countries on terms more flexible and bearing less heavily on their balance of payments than those of conventional loans. Canada's share of total subscriptions is \$37,830,000 (U.S.).

The International Finance Corporation.—The function of the International Finance Corporation, which is an affiliate of the IBRD, is to promote the growth of productive private enterprise by assisting private capital, by acting as a clearing house in bringing together investment opportunities and private capital and by helping to enlist managerial skill and experience when not otherwise available to a project. Canada has subscribed \$3,520,000 to the capital of the Corporation.

International Labour Organization.—The International Labour Organization was originally associated with the League of Nations and became a Specialized Agency of the United Nations in 1946. It brings together representatives of governments, employers and workers from member States in an attempt to promote social justice by improving working and living conditions in all parts of the world. To further this goal, meetings are held usually on an annual basis, the latest of which took place in Geneva in June of 1961. ILO is responsible for the execution of a number of training projects which are financed by the United Nations Special Fund.

Intergovernmental Maritime Consultative Organization.—Canada as a member of the Intergovernmental Maritime Consultative Organization (IMCO) with headquarters in London, England, was represented at the Second Session of the IMCO Assembly which was held in London in April 1961. In addition, Canada as a member of the IMCO Council attended meetings of the Council held in London during the year.

The International Monetary Fund.—The International Monetary Fund, set up by the Bretton Conference of 1944, came into being in 1945. It provides machinery for international consultation and collaboration on monetary, payments and exchange problems. Included in these purposes are the promotion of exchange stability, the elimination of exchange restrictions, the establishment of a multilateral system of current payments and the expansion and balanced growth of international trade. Also, member countries under certain conditions may draw on the resources of the Fund, which now amounts to some \$14,000,000,000. Canada has been represented on the Fund's Board of Executive Directors since 1945.

International Telecommunication Union.—Canada is a member of the International Telecommunication Union (ITU), a Specialized Agency of the United Nations, which traces its origin to the International Telegraph Convention of 1865 and the International Radio Telegraph Convention of 1906. The Administrative Council of the ITU met in Geneva in the spring of 1961; Canada was represented at this meeting and at meetings of subsidiary bodies that took place during the year.

Universal Postal Union.—One of the oldest and largest of the Specialized Agencies, the Universal Postal Union (UPU), was founded in Berne in 1874 with the principal aim of improving postal services throughout the world and promoting international collaboration. The Universal Postal Congress is the supreme authority of the UPU and meets every five years to review the Universal Postal Convention and its subsidiary instruments. In the interim, activities of the Union are carried on by an Executive and Liaison Committee, a Consultative Committee on Postal Studies and an International Bureau. At the Congress held in Ottawa in 1958, Canada was elected to the Executive and Liaison Committee. The 15th Congress is scheduled to be held in New Delhi in 1962.

World Health Organization.—The World Health Organization, which came into being in 1948, is one of the largest of the Specialized Agencies of the United Nations with a membership of 104. Functioning through the World Health Assembly, an organization composed of an Executive Board, a Secretariat and six Regional Committees, WHO acts as a directing and co-ordinating authority on international health matters. In addition, it provides advisory and technical services to help countries develop and improve their health services. The 14th World Health Assembly was held in New Delhi in February 1961. (See also the item "International Health" in Subsection 5, Section 1, Part I of the Public Health, Welfare and Social Security Chapter of this volume.)

World Meteorological Organization.—Canada is a member of the World Meteorological Organization (WMO), a Specialized Agency of the United Nations since 1951 but developed from the International Meteorological Organization which was founded in 1878. Mr. P. D. McTaggart-Cowan, Director of Meteorological Services, Department of Transport, an elected member of the Executive Committee of WMO, attended the 12th session of the

Executive Committee held in WMO's new headquarters building in Geneva in the summer of 1961. Canada was also represented at a number of meetings of subsidiary bodies of WMO.

The International Atomic Energy Agency.—Formed in 1957, the International Atomic Energy Agency (IAEA) is an autonomous international organization under the aegis of the United Nations. The Agency was given a mandate to seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world in a variety of ways.

Because Canada is considered to be one of the five members most advanced in nuclear technology, including the production of source materials, this country has served on the Board of Governors since the inception of the Agency. The latest meeting of the IAEA General Conference was held at Headquarters in Vienna in October 1961.

The International Law Commission.—By Article 13 (1) of the Charter of the United Nations, one of the purposes of the UN General Assembly is to encourage the progressive development of international law and its codification. In order to implement and to assist in this function, the International Law Commission was created by General Assembly Resolution dated Nov. 21, 1947. It is composed of 25 members who are elected in individual capacities. They serve for terms of five years and, in general, represent the main forms of civilization and principal legal systems of the world. On Nov. 28, 1961, Mr. Marcel Cadieux, Deputy Under-Secretary of State for External Affairs and Legal Advisor to the Department of External Affairs of Canada, was elected to membership of this Commission. The 25 countries whose nations form, at present, the International Law Commission are: Afghanistan, Austria, Brazil, Cameroun, Canada, China, Dahomey, Ecuador, Finland, France, India, Iraq, Israel, Italy, Japan, Mexico, Nigeria, Poland, Spain, the Union of Soviet Socialist Republics, the United Arab Republic, the United States of America, Uruguay and Yugoslavia.

Subsection 3.—Canada and the North Atlantic Treaty Organization*

There were two ministerial meetings during 1961 and meetings of the Permanent Representatives of the North Atlantic Council were held continuously throughout this period. On Apr. 21, 1961, Mr. Dirk U. Stikker of the Netherlands succeeded Mr. Paul-Henri Spaak of Belgium as Secretary General of the Organization. The Permanent Representative of Canada continued to be Mr. Jules Léger, former Under-Secretary of State for External Affairs.

From May 8-10, 1961, the annual spring meeting of the Foreign Ministers of the NATO Alliance was held at Oslo, Norway. While re-affirming that the Alliance would never be used for aggression, the members noted that the Soviet threat which drew them together "is now not only military but also has world-wide political, economic, scientific and psychological aspects". In the review of the international situation, the Ministers noted with regret the lack of progress on German re-unification and voiced their determination to maintain the freedom of West Berlin. They declared that disarmament by stages under effective international control remained one of the principal objectives of their governments and they expressed the hope that an effective treaty to suspend nuclear tests would be forthcoming. Serious consideration was given to the importance of developing political consultation among members in the Council. Emphasis was also placed on the task of assisting the less-developed areas of the world and members re-affirmed their determination to increase their efforts to help these areas raise their social and material standards.

The annual ministerial meeting convened in Paris Dec. 13-15, 1961, with the Secretary of State for External Affairs, the Hon. H. C. Green; the Minister of Finance, the Hon.

* The terms of the Treaty and the organization of the Council and subordinate committees are dealt with in the 1954 Year Book at pp. 113-115. A short review of the events leading up to the establishment of NATO and its subsequent membership is given in the 1960 Year Book at p. 167.

D. M. Fleming; and the Minister of National Defence, the Hon. D. S. Harkness, leading the Canadian delegation. The international situation, particularly with regard to the Soviet-provoked crisis in Berlin, was thoroughly reviewed and approval was given for the resumption of diplomatic contacts with the Soviet Union; hope was expressed that a negotiated settlement could be achieved. The Ministers agreed that rights and obligations confirmed by international agreements could not be written off unilaterally by the Soviet Union concluding a "peace treaty" with a régime of its own creation and they re-affirmed the responsibilities which each member State had assumed for the security and welfare of Berlin. They took note of the defensive strength of the Alliance and agreed that so long as the Communist bloc was unwilling to agree to real disarmament, the Alliance had no alternative but to continue to strengthen their forces and modernize equipment in order to deter Communist aggression and to be able to deal with any form of attack. At the same time, Ministers expressed the hope that, despite the Soviet Government's refusal to accept an effective and universally applicable system of international control, disarmament negotiations when resumed would yield useful results.

Permanent representatives of the member countries met between ministerial meetings to consider the international, political, economic and military developments of concern to the Alliance, review the defence plans of members, deal with expenditures on commonly financed military installations (infrastructure), and study the measures required to provide peacetime readiness and civil defence. Military exercises were held to prove the readiness of the army, navy and air forces assigned to NATO Commands.

Canadian Contributions to NATO.—Support for the North Atlantic Treaty Organization during 1961 continued to be one of the foundations of Canadian foreign policy. As its contribution to the military strength of the Alliance, Canada maintains an army brigade and an air division in Europe and supporting forces in Canada. It has assigned a substantial naval force to the Supreme Allied Commander Atlantic (SACLANT) for the defence of the Canada-United States region in case of emergency and participates with the United States in the defence of the North American Continent through the North American Air Defence Command (NORAD).

In June 1961, the Prime Minister announced an agreement between Canada and the United States relating to the defence of the Canada-United States region, an objective of which was to demonstrate the material determination of the two countries to improve the defensive strength of NATO and particularly of NORAD. Under the agreement, Canada, in addition to the stations already under its control, assumed the responsibility for 16 stations of the Pinetree Line which hitherto had rested on the United States. In consideration of these additional responsibilities, the RCAF squadrons allocated to NORAD are being re-equipped with *F-101B* interceptor aircraft, the cost of the equipment and armament for which will be shared on the basis of the United States paying two-thirds and Canada paying one-third. The United States agreed to the procurement in Canada of a number of *F-104G* aircraft, support equipment and initial spares to the total value of \$200,000,000, of which the United States' share will be \$150,000,000 and Canada's share \$50,000,000. These aircraft will enable Canada and the United States to make a significant contribution to the collective strength of NATO under their respective mutual aid and defence assistance programs.

In September, in the light of the deterioration in the international situation and the increase in tension resulting from Soviet pressures over Berlin, steps were taken to strengthen the army brigade and air division assigned to NATO by an increase in personnel and to increase the personnel complement of the naval forces assigned to SACLANT. In addition, to improve the general military effectiveness of forces in Canada, plans were made to increase the strength of the army and air force. The total increase would amount to approximately 15,000 men.

Since 1950, Canada has contributed more than \$1,750,000,000 in mutual aid to European members of NATO. The aid program, consisting of contributions to NATO

infrastructure and military costs, transfers of equipment to member countries and aircrew training in Canada of NATO forces, continued throughout 1961. This program, while decreasing in magnitude with the changing conditions and the increasing ability of the European members to meet their individual defence requirements, continues to play a vital role in strengthening NATO forces.

Subsection 4.—Canadian External Aid Programs

The Colombo Plan.—The Colombo Plan for Co-operative Economic Development in South and Southeast Asia was conceived at the Commonwealth Meeting of Foreign Ministers held at Colombo, Ceylon, Jan. 9-14, 1950. Although the Colombo Plan was initiated by Commonwealth governments, it is not exclusively a Commonwealth program. It is designed to assist in the economic development and raising of living standards of all countries and territories in the general area of south and southeast Asia. Its membership now includes Australia, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Malaya, Nepal, New Zealand, North Borneo, Pakistan, the Philippines, Sarawak, Singapore, Thailand, Britain and Viet Nam, as well as the United States which is also engaged in a substantial program of economic aid in the same region.

The Colombo Plan is supervised by a Consultative Committee composed of Ministers of the member countries, who meet once a year to review projects, exchange views on policy matters and prepare an annual report. It is, as its name implies, a 'consultative' body; no collective policy decisions binding member countries are taken at its meetings. A Council for Technical Co-operation, on which Canada is represented, meets regularly in Ceylon to develop the technical co-operation program of the Colombo Plan. Colombo Plan Day was celebrated throughout member countries on July 1, 1961 to commemorate the tenth year of Colombo Plan operations.

From the inception of the Plan in 1950 through April 1961, Canada made available a total of \$331,670,000 for capital and technical assistance projects in south and southeast Asia. At the Commonwealth Trade and Economic Conference held in Montreal in September 1958, Canada announced an increase from \$35,000,000 to \$50,000,000 in its annual contribution to the Colombo Plan over three years beginning in the year 1959-60.

While ten countries are now receiving capital assistance from Canada, the largest contributions have so far been made to India, Pakistan and Ceylon. The Canadian contribution has consisted primarily of direct assistance to various development projects, including equipment for multi-purpose irrigation and hydro-electric projects, power-generating plants, construction and fisheries projects and resources surveys, as well as educational and laboratory equipment and books. It has also included gifts of raw materials, commodities and foodstuffs such as industrial metals, asbestos, fertilizer, wheat, flour and butter, from the local sale of which recipient governments have been able to raise funds to meet local costs of economic development projects.

Under the Technical Assistance Programme, up to October 1961 more than 1,700 persons from all countries in the area had come to Canada for training in a variety of fields, the major ones being public administration and finance, agriculture, co-operatives, engineering, mining and geology, statistics, health education and social welfare. Nearly 200 Canadian experts had been sent abroad for service in Colombo Plan countries in such fields as fisheries, agriculture, engineering, mining and prospecting, co-operatives, public administration, education and vocational training, and public health. Other Canadians were employed on aerial resources survey teams and in the installation and operation of capital equipment.

The Consultative Committee of the Colombo Plan held annual meetings at Singapore in 1955, at Wellington in 1956, at Saigon in 1957, at Seattle in 1958, at Jogjakarta in 1959, at Tokyo in 1960 and at Kuala Lumpur in 1961. At the Jogjakarta meeting it was

agreed that the Colombo Plan should be extended for another five years from June 1961. Reports of the Committee on progress and future plans are published after each annual meeting; each report also contains sections describing the activities of member countries.

Canada-West Indies Aid Programme.—On the formation of the Federation of the West Indies in 1958, Canada undertook a \$10,000,000 program of economic and technical assistance over the period from 1958-63. The first major project in this program was the provision of two passenger-cargo ships for inter-island transportation at a cost of approximately \$6,000,000. The vessels were commissioned in the summer of 1961 and handed over to the West Indies Government. Tools and equipment valued at \$28,000 have been supplied to a technical school at St. Kitts, a dock costing approximately \$1,000,000 is under construction at St. Vincent, port equipment valued at \$435,000 is being supplied to various islands and a residence for students is to be constructed at the University College of the West Indies in Trinidad.

Up to Oct. 31, 1961, training programs had been arranged for 38 individuals from the West Indies in different fields, including public administration, information services, fisheries, etc. The 28 Canadian experts who undertook assignments during this period went to Trinidad, Jamaica, St. Lucia, St. Vincent and St. Kitts. They included soil surveyors and advisers in statistics, legal drafting, housing, education, films, radio broadcasting, postal services and harbour management.

Commonwealth Technical Assistance Programme.—At the Commonwealth Trade and Economic Conference held in Montreal in September 1958, Canada announced a decision to provide funds for technical assistance to Commonwealth countries outside the Colombo Plan area, with particular emphasis on the African territories. By the end of March 1961, Canada had made available \$1,130,000 to this program. Ghana and Nigeria received the greatest amount of aid, although some assistance was extended also to British Guiana, British Honduras, Uganda, Hong Kong and Sierra Leone. The Commonwealth countries in Africa are now eligible for Canadian assistance under a new Special Commonwealth African Aid Programme described below.

By Oct. 31, 1961, 54 training programs had been arranged since the inception of the plan, the chief fields being agriculture, co-operatives, mining, geology, engineering, public and business administration, health and social welfare. Eighteen Canadians had undertaken advisory assignments in Ghana, Nigeria, Uganda, British Guiana and British Honduras in education, public information, public administration, law and agriculture.

Special Commonwealth African Aid Programme.—At a meeting of the Commonwealth Economic Consultative Committee in London in September 1960, it was agreed that a program of economic and technical assistance for Commonwealth countries and territories in Africa should be launched. Canada undertook to provide a contribution of \$10,500,000 to this program over a period of three years beginning with the year ending Mar. 31, 1962.

By Oct. 31, 1961, training programs had been arranged in Canada for 36 Africans under this plan and 37 Canadian teachers and other advisers had been sent to Commonwealth countries in Africa, including Gambia, Ghana, Kenya, Mauritius, Nigeria, Sierra Leone, Tanganyika and Uganda. In addition, an aerial survey and mapping project had been undertaken in Nigeria at a cost of \$1,350,000.

Educational Assistance to French-Speaking States in Africa.—In April 1961, the Canadian Government announced that it proposed to offer assistance in the educational field to French-speaking States in Africa, and Parliament subsequently appropriated \$300,000 for this purpose for the year ending Mar. 31, 1962. By the end of 1961, plans were under way to send some 15 French-speaking Canadian teachers to Africa under this program.

Co-operation with the United Nations and its Specialized Agencies, and with Other International Aid Programs.—In addition to the annual contributions made to the United Nations Expanded Programme of Technical Assistance, Canada also assists by arranging training programs in Canada for individuals studying under the auspices of the different Specialized Agencies. This service is also extended to the technical assistance program of the International Co-operation Administration of the United States as well as to other international aid organizations. Up to Oct. 31, 1961, approximately 1,525 individuals had come to Canada through the various agencies from more than a hundred different countries in all parts of the world. Assistance is also given by recruiting Canadians for service with the Specialized Agencies on specific technical assistance assignments in under-developed countries.

Organization.—As of Nov. 9, 1960, the operation and administration of Canada's external assistance programs became the responsibility of the External Aid Office, established by Order in Council of that date, and placed in charge of an officer known as the Director General of External Aid Programmes. The Director General is directly responsible to the Secretary of State for External Affairs for all matters connected with Canadian external assistance programs, including the Colombo Plan, the Canada–West Indies Aid Programme, the Special Commonwealth African Aid Programme, the Commonwealth Technical Assistance Programme, the Commonwealth Scholarship and Fellowship Plan and the Programme for French-Speaking African States as well as for operational liaison with aid programs administered by the United Nations and other international agencies.

CHAPTER III.—POPULATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Section 1.—Census of Population

This Section normally presents a limited summary of the voluminous data on population recorded by the Census of Canada. Such summary data resulting from the 1961 Census — Canada's tenth decennial census since Confederation—as was available at the time of going to press with this publication (mid-1962) will be found in Appendix II. Detailed census statistics and analyses will be published, as they become available, in census bulletins which are obtainable from the Queen's Printer or the Dominion Bureau of Statistics, Ottawa.

A list of the 1961 Census publications, with their prices and an order form, is available from the Dominion Bureau of Statistics on request. An indication of the type and content of those relating to population, households, families and housing follows; many of them will be published by the end of 1962 and the remainder in 1963.

PUBLICATIONS OF THE 1961 CENSUS OF CANADA*

Advance Series

These reports provide summary information on basic topics for which there is wide demand and are published at earlier dates than the regular series of volume reports. They cover: population by electoral districts; population by counties and census divisions; population of urban centres of 5,000 and over; rural farm, non-farm, and urban population; separate reports classifying population for counties and census divisions, and urban centres of 10,000 and over by age groups, marital status, origins, religious denominations, official language and mother tongues; immigrant population by periods of immigration and summary housing characteristics.

* Partial list only, dealing with population, households and families, and housing.

Volume Series

Reports in this Series represent the main results of the 1961 Census and may be ordered singly or in volume sets. They are prepared in such a way that they may be combined within a hard-covered binder (provided with the set) to form the complete subject matter of each Volume.

VOLUME I (PART 1)—POPULATION: GEOGRAPHICAL DISTRIBUTION

Includes reports showing population totals for geographical areas such as provinces, electoral districts, counties and census divisions, and municipal subdivisions; rural and urban distributions; historical tables on population growth; and reference maps.

VOLUME I (PART 2)—POPULATION: GENERAL CHARACTERISTICS

Includes reports showing population classifications by such basic characteristics as sex, age groups, marital status, origin, religion, birthplace, official language, mother tongue, citizenship, period of immigration, school attendance and schooling.

VOLUME I (PART 3)—POPULATION: CROSS-CLASSIFICATIONS OF CHARACTERISTICS

Includes reports showing cross-classifications of population by such characteristics as age groups and sex, ethnic groups and sex, and period of immigration and sex, to show marital status, birthplace, religious denomination, education and language distributions.

VOLUME II (PART 1)—HOUSEHOLDS AND FAMILIES

Includes reports showing data on size and composition of households and families, and cross-classifications of household and family data by characteristics of head.

VOLUME II (PART 2)—HOUSING CHARACTERISTICS

Includes reports showing housing data based on a 20-p.c. sample of dwellings, covering such characteristics as type of dwelling, number of rooms, rent, household facilities; and cross-classifications of dwelling attributes by characteristics of head.

Special Series

This Series contains some basic materials not included in the regular Volume Series and which relate for the most part to more detailed geographical areas, such as population by specified age groups for census subdivisions; population by specified origins for census subdivisions; population by specified religious denominations for census subdivisions; and population of unincorporated villages and settlements, with guide to locations.

Census Tract Series

Basic population and housing data will be issued for each of the larger cities (or metropolitan areas) according to census tracts (i.e., areas of approximate uniformity in population size and composition). Some 23 cities are included in the census-tract program: St. John's, Nfld.; Halifax, N.S.; Saint John, N.B.; Quebec, Montreal, Trois Rivières and Sherbrooke, Que.; Ottawa, Toronto, Hamilton, London, Windsor, Oshawa, Sudbury, Kingston and Kitchener, Ont.; Winnipeg, Man.; Regina and Saskatoon, Sask.; Calgary and Edmonton, Alta.; and Vancouver and Victoria, B.C. The publication of these reports will follow, for the most part, the Volume Series of reports on population and housing.

Section 2.—Intercensal Surveys

Estimates of the total population of Canada and of the population of each province are prepared and appear about June 1 of each intercensal year. Such estimates have many uses. They are necessary to the calculation of costs of certain economic and social legislation. Business, educational and welfare organizations utilize population estimates in planning future development. They constitute a base for vital statistics rates, per capita figures of production and trade, and other analyses. They also have been found useful for estimating labour force and other population characteristics of data collected in sample surveys.

Estimates of population begin with the preceding census counts; births and immigration are added, deaths and emigration are subtracted and, for provincial estimates, inter-provincial migration taken into account. When figures become available from a new census, the estimates for the intervening years are adjusted to the newly recorded population figures. Thus the estimates prepared for the years 1957 to 1960, based on the 1956 Census, will be adjusted to the populations recorded by the 1961 Census. Such revisions will be available before this publication goes to press and will be carried in Appendix II.

Section 3.—The Native Peoples of Canada

The Indians*

Approximately one of every hundred Canadians is registered as an Indian by the Department of Citizenship and Immigration. This number includes all persons with a paternal ancestor of Indian race who have chosen to remain under Indian legislation. In the aggregate, the Indians are grouped into 562 bands and occupy or have access to 2,217 reserves having a total area of 5,899,890 acres.

About 26 p.c. of the Indians reside away from reserves, including those in the Northwest Territories and the Yukon for whom reserves have not been set aside. Many Indians, both on and off reserves, have specialized in various professions, trades and agricultural pursuits. Others have fitted into the economy of the areas in which they live in a wide range of occupations. More than 230 Indians are employed by the Indian Affairs Branch of the Department of Citizenship and Immigration, 116 of them as teachers. In the northern and other outlying areas, hunting, fishing and trapping remain an important means of livelihood for Indians.

Subject to special provisions in the Indian Act, all laws of general application are applicable to Indians. Indians are liable for taxation of property held off a reserve as well as of any income they earn off a reserve. They may vote in federal elections on the same basis as other citizens and in provincial elections where the electoral laws of the provinces permit. Indians are free to enter into contractual obligations and may sue and be sued. However, their real and personal property situated on a reserve is exempt from seizure except on suit by another Indian.

* Revised in the Information Division, Department of Citizenship and Immigration, Ottawa.

1.—Indian Land in Reserves and Number of Bands, by Province, as at Mar. 31, 1960

Province	Reserves		Bands	Province or Territory	Reserves		Bands
	No.	Area			No.	Area	
		acres	No.			acres	No.
Prince Edward Island....	4	2,741	1	Saskatchewan.....	120	1,205,538	67
Nova Scotia.....	43	25,352	11	Alberta.....	87	1,545,985	41
New Brunswick.....	23	37,565	15	British Columbia.....	1,619	818,196	195
Quebec.....	26	179,016	41	Yukon Territory.....	15	3,535	15
Ontario.....	163	1,555,797	111	Northwest Territories....	10	1,924	15
Manitoba.....	107	524,241	50				
				Canada.....	2,217	5,899,890	562

A Departmental census of Indian population is taken every five years; the numbers recorded at the censuses of 1949, 1954 and 1959 are given in Table 2. The 1960 figures are taken from band membership lists kept for administrative purposes by the Indian Affairs Branch.

2.—Indian Population, by Province, Departmental Censuses 1949, 1954 and 1959, and at Dec. 31, 1960¹

Province	1949	1954	1959	1960 ¹	Province or Territory	1949	1954	1959	1960 ¹
	No.	No.	No.	No.		No.	No.	No.	No.
P. E. Island.....	273	272	341	343	Alberta.....	13,805	15,715	19,287	20,053
Nova Scotia.....	2,641	3,002	3,561	3,630	British Columbia...	27,936	31,086	36,229	37,375
New Brunswick....	2,139	2,629	3,183	3,280	Yukon Territory....	1,443	1,568	1,863	1,923
Quebec.....	15,970	17,574	20,453	21,154	Northwest Territories.....	3,772	4,023	4,598	4,758
Ontario.....	34,571	37,255	42,668	43,767	Canada.....	136,407	151,558	179,126	185,169
Manitoba.....	17,549	19,684	23,658	24,608					
Saskatchewan.....	16,308	18,750	23,280	24,278					

¹ Figures from Indian Affairs Branch records.

The 1959 Indian population in each province is classified by age group and sex in Table 3. The rapid growth of that population in recent years is indicated by the fact that in 1959 more than 56 p.c. of the Indians were under 21 years of age compared with 42 p.c. of the population of Canada as a whole. Religious denominations of the Indian population are given in Table 4.

3.—Indian Population classified by Age Group and Sex, by Province, Departmental Census 1959

Province or Territory	0-5 Years		6-15 Years		16-20 Years		21-64 Years	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	36	28	32	36	23	17	80	66
Nova Scotia.....	329	291	462	460	177	162	763	645
New Brunswick.....	363	335	414	404	144	146	673	549
Quebec.....	1,805	1,851	2,314	2,293	918	945	4,764	4,280
Ontario.....	4,057	3,992	5,224	5,108	1,989	2,049	9,220	8,147
Manitoba.....	2,765	2,709	3,195	3,121	1,148	1,127	4,633	3,916
Saskatchewan.....	2,888	2,867	3,063	3,080	1,071	1,098	4,334	3,956
Alberta.....	2,386	2,313	2,563	2,661	901	980	3,537	3,110
British Columbia.....	3,955	3,994	4,866	4,740	1,808	1,840	7,235	6,214
Yukon Territory.....	215	191	215	258	83	89	380	332
Northwest Territories.....	428	485	566	527	203	223	1,002	869
Totals.....	19,227	19,056	22,914	22,688	8,465	8,676	36,621	32,084
	65-69 Years		70 + Years		Not Stated		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	2	2	5	5	2	7	180	161
Nova Scotia.....	34	23	57	45	47	66	1,869	1,692
New Brunswick.....	23	17	41	33	16	25	1,674	1,509
Quebec.....	242	159	354	345	47	136	10,444	10,009
Ontario.....	403	343	788	699	213	436	21,894	20,774
Manitoba.....	179	149	317	320	15	64	12,252	11,406
Saskatchewan.....	194	136	290	254	6	43	11,846	11,434
Alberta.....	170	90	243	216	43	74	9,843	9,444
British Columbia.....	293	226	542	460	10	46	18,709	17,520
Yukon Territory.....	8	21	37	37	—	2	938	930
Northwest Territories.....	57	36	77	86	16	23	2,349	2,249
Totals.....	1,605	1,202	2,751	2,500	415	922	91,998	87,128

4.—Religious Denominations of the Indian Population, by Province, Departmental Census 1959

Province or Territory	Anglican	Baptist	United Church	Presbyterian	Roman Catholic	Other Christian Beliefs	Aboriginal	Not Stated	All Denominations
	No.	No.	No.	No.	No.	No.	No.	No.	No.
P.E.I.....	—	—	—	—	340	—	—	1	341
N.S.....	—	—	6	—	3,531	—	—	22	3,561
N.B.....	—	—	1	—	3,022	2	—	160	3,183
Que.....	3,952	5	784	2	14,827	219	215	449	20,453
Ont.....	12,232	2,865	6,836	892	14,734	674	2,501	1,934	42,668
Man.....	6,999	—	5,899	1,025	9,126	306	82	221	23,668
Sask.....	6,915	54	2,015	366	12,462	59	1,170	239	23,280
Alta.....	2,426	143	2,127	26	13,853	437	58	207	19,287
B.C.....	6,900	—	6,852	6	21,077	1,117	—	277	36,229
Yukon.....	1,331	93	—	—	438	—	—	6	1,868
N.W.T.....	778	—	—	1	3,553	—	—	266	4,598
Totals.....	41,543	3,160	24,520	2,318	96,963	2,814	4,026	3,782	179,126

Administration.—Pursuant to the British North America Act, the administration of Indian Affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada. Since January 1950, Indian Affairs have been the responsibility of a Branch of the Department of Citizenship and Immigration.

The Indian Affairs Branch is composed of a headquarters staff at Ottawa, nine regional offices, and 89 field agencies. Specialists in such matters as education, economic development, resource management, social welfare, and engineering and construction are attached to headquarters and regional staffs. Liaison is maintained with the Indian and Northern Health Services of the Department of National Health and Welfare, the federal agency concerned with the medical care of Indians.

It is the primary function of the Indian Affairs Branch to administer the affairs of Indians in a manner that will enable them to participate fully in the social and economic life of the country. To this end, the Branch has brought into effect a wide range of programs in the fields of education, economic development, social welfare and community development. Underlying administrative duties of the Branch include the management of Indian reserves and surrendered lands, the administration of band funds, estates management, enfranchisement of Indians and the administration of treaty obligations.

Joint Committee of the Senate and the House of Commons on Indian Affairs.—In the spring of 1959 a Joint Committee of the Senate and the House of Commons was appointed to examine and consider the Indian Act and amendments thereto, and to suggest such amendments as they might deem advisable, with authority to investigate and report upon Indian administration in general and, in particular, on the social and economic status of the Indians. The examination and consideration begun by the Joint Committee in 1959 was continued by similar Joint Committees appointed in 1960 and 1961. Each Committee had the power to call for persons, papers and records and to examine witnesses under oath.

During the three years of deliberation, the Joint Committee received more than a hundred written submissions and heard more than a hundred witnesses. All the Indian associations and many Indian bands presented submissions. In addition, Church authorities, provincial governments, welfare, medical and other voluntary organizations concerned with the well-being and progress of the Indian people gave their views about Indian administration generally and made suggestions to improve the Indians' social and economic status. The Indian Affairs Branch and the Directorate of Indian and Northern Health Services also gave their views.

The Joint Committee presented its final report to Parliament on July 8, 1961, which includes the following general statement:—

"It became quite evident early in the proceedings, not only from the content of the briefs and submissions made but as well in the quality and manner of presentation, that the winds of change have been blowing through the ranks of Indian people and that there is also a growing awareness and recognition of their problems and needs amongst the non-Indian population.

"The time is now fast approaching when the Indian people can assume the responsibility and accept the benefits of full participation as Canadian citizens. Your Committee has kept this in mind in presenting its recommendations which are designed to provide sufficient flexibility to meet the varying stages of development of the Indians during the transition period.

"It is the view of the Committee that the Government should direct more authority and responsibility to Band Councils and individual Indians with a consequent limitation of ministerial authority and control, and that the Indians should be encouraged to accept and exercise such authority and responsibility.

"Your Committee believes that the advancement of the Indians towards full acceptance of the responsibilities and obligations of citizenship must be without prejudice to the retention of the cultural, historical and other economic benefits which they have inherited."

The findings of the Joint Committee, which will shape the course of Indian Affairs in the years ahead, are being thoroughly studied by the federal authorities concerned.

Education.—More than 43,000 Indians are enrolled in schools throughout the country. Nearly one-quarter of these attend provincial and private schools, the cost of tuition being assumed by the Federal Government. As a further encouragement to the integration of Indian children in non-Indian schools, grants are made toward the cost of any new or supplementary construction required by their admission.

There are four types of Indian schools, all operated at the cost of the Government. On most reserves, day schools have been established to provide education for children who live at home. Residential schools are operated to care for orphaned children, children from broken homes, and for those who, because of isolation or other reasons, are unable to attend day schools. Seasonal schools have been established for the children of migratory families, particularly in the Far North. The fourth type of school gives instruction to children confined to hospital.

All standard classroom supplies and authorized textbooks are provided in Indian schools. Financial assistance for pupils attending non-Indian schools varies from payment of tuition fees for some to full maintenance for others. Promising senior students are awarded scholarships to attend university or vocational school and scholarships are given to those who show promise in the arts.

5.—Enrolment of Indian Pupils, classified by Type of School and by Grade, School Year 1960-61

Classification	Grade				Technical	Professional	Total
	Kinder- garten	1-6	7-8	9-13			
	No.	No.	No.	No.	No.	No.	No.
Day school.....	2,234	16,204	1,698	86	—	—	20,222 ¹
Residential school boarders attending classes at residential schools.....	480	6,748	1,112	567	—	—	8,907
Day pupils attending classes at resi- dential schools.....	197	1,751	214	11	—	—	2,173
Seasonal school.....	...	...	...	...	...	...	698
Hospital school.....	...	...	...	...	...	...	293
Provincial, private or territorial school.....	—	6,522	1,727	2,021	438	114	10,822 ²
Totals.....	2,911	31,225	4,751	2,685	438	114	43,115²

¹ Includes 393 resident boarders attending Indian day schools.
for whom full information is not available.

² Excludes 2,363 children of school age

6.—Indian Pupils Attending Provincial, Private or Territorial Schools, classified by Grade or Type of Training, by Province, School Year 1960-61

Grade or Type of Training	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Grade—												
1.....	—	5	—	58	206	107	192	109	509	328	26	1,540
2.....	1	1	2	42	173	76	94	91	359	157	23	1,019
3.....	1	6	2	90	167	67	119	93	336	165	18	1,064
4.....	1	10	6	89	156	75	81	108	348	116	18	1,008
5.....	1	7	19	91	192	63	66	84	313	95	36	967
6.....	1	14	20	98	184	64	57	84	311	61	30	924
7.....	—	8	23	87	170	70	53	86	378	34	22	931
8.....	—	2	9	57	141	60	43	106	304	34	40	796
9.....	—	20	16	50	293	44	78	91	276	8	28	904
10.....	—	22	12	33	162	21	48	41	200	3	8	550
11.....	—	6	7	22	93	16	22	27	143	2	5	343
12.....	—	1	1	6	63	14	21	25	65	3	3	202
13.....	—	—	—	—	15	—	—	—	7	—	—	22
University—												
1st year.....	—	1	—	7	2	3	2	1	9	—	—	25
2nd year.....	1	3	1	5	2	—	3	1	3	—	—	19
3rd year.....	—	1	1	3	2	—	1	—	1	—	—	9
4th year.....	—	1	1	—	2	—	—	—	—	—	—	4
Law.....	—	—	—	—	—	—	—	—	1	—	—	1
Medical.....	—	—	—	1	1	—	—	—	—	—	—	2
Teacher training.....	—	—	—	3	6	1	2	—	1	—	—	13
Nurse training.....	—	2	—	1	5	2	3	3	2	—	—	18
Commercial.....	—	6	2	18	26	17	11	15	13	—	—	108
Trades.....	2	18	14	69	63	31	12	4	12	—	—	225
Nurses' aide.....	—	—	—	4	3	1	4	3	8	—	—	23
Blind and deaf.....	—	—	1	2	12	9	3	1	3	—	—	31
Other.....	—	—	—	9	39	5	2	8	11	—	—	74
Totals.....	8	134	137	845	2,178	746	917	981	3,613	1,006	257	10,822
Not graded ¹	—	263	—	282	1,159	116	139	50	285	64	5	2,363

¹ Indians of school age for whom full information is not available.

Economic Development.—With a view to providing for all Indians the opportunity to earn satisfactory incomes, the Indian Affairs Branch has instituted a number of programs in the field of economic development. These programs give special attention to the placement of Indians in employment; the promotion of agriculture and stock-raising on reserves; the fostering of Indian enterprise and the provision of loans; home industries and handicrafts; the management of fur, fish and wildlife resources; and assistance to Indians in developing other resources on or within access of the reserves.

The Employment Placement Program has the objective of developing job opportunities for Indians and promoting their employment in a wider range of occupations. Placement Officers are attached to Branch Regional Offices at Vancouver, Edmonton, Saskatoon, Winnipeg, North Bay, Toronto, Quebec, Amherst and Fort Smith, and are also located at The Pas, London, Calgary, Whitehorse and Prince George. In addition, the facilities of the National Employment Service are utilized in placing Indians in both urban and rural employment.

Under the fur resources rehabilitation and management program, which has been carried on for some time in co-operation with various provinces, beaver production in Saskatchewan, Manitoba, Ontario and Quebec has risen steadily. Total Indian income from trapping in the 1960-61 season was approximately \$6,750,000.

Commercial fishing by inland Indians is also growing in economic importance. The 1960 lake catch was valued at over \$1,000,000, coastal fisheries brought in approximately \$4,000,000 and \$800,000 was earned by Indians in the packing, canning and processing of fish products.

A special \$1,000,000 revolving fund has been set aside by the Government as a source of credit for Indians who live on reserves. During the year ended Mar. 31, 1961, 135 loans totalling \$177,029 were approved. Most of these loans were for agricultural purposes, including the purchase of machinery and cattle.

Welfare.—A public assistance program is provided by the Indian Affairs Branch for Indians who are unable, for various reasons, to maintain themselves and their families. In the field of rehabilitation, handicapped Indians are helped, through training and selected placement, to the fullest utilization of their abilities. Care of neglected children rests for the most part with the Branch but, increasingly, the co-operation and assistance of provincial accredited child-caring agencies are being employed. Housing is another important item of Indian welfare services—more than 10,000 houses were built and thousands of others repaired during the past decade.

7.—Housing on Indian Reserves, by Region, Year Ended Mar. 31, 1961

Region	Houses			Expenditures				
	Started before, Completed during Year	Started and Completed during Year	Started during Year but Not Completed	From Welfare Appropriation	From Band Funds	From VLA Grant	Personal Contributions	Total
	No.	No.	No.	\$	\$	\$	\$	\$
Maritime Provinces.....	2	26	7	84,166	—	5,842	7,000	97,008
Quebec.....	19	117	14	302,796	13,155	5,203	63,335	384,489
Ontario—								
Southern.....	21	41	42	110,102	46,276	5,898	172,546	334,821
Northern.....	9	102	27	251,311	54,055	3,895	43,575	352,836
Manitoba.....	33	126	17	276,149	16,009	2,080	56,179	350,418
Saskatchewan.....	12	248	31	361,899	152,729	—	66,326	580,954
Alberta and Northwest Territories.....	67	211	41	353,247	586,869	—	29,217	969,333
British Columbia and Yukon Territory.....	33	158	68	453,281	104,458	2,320	211,602	771,661
Canada.....	196	1,029	247	2,192,951	973,551	25,238	649,780	3,841,520

Every effort is made to reach agreement with provincial governments which will make possible the application of normal provincial welfare services and benefits on reserves. Several bands in Ontario now participate in the Ontario General Welfare Assistance Act. Throughout Canada, Indians are paid family allowances, old age security, old age assistance, blind persons' allowances and disabled persons' allowances, and in the Provinces of Ontario and Quebec mothers' allowances are available to needy Indian mothers.

Community Development.—Community development on Indian reserves is progressing at an ever-increasing rate. Leadership training courses are conducted under Indian Affairs Branch auspices to help Indians identify and understand community problems and become familiar with accepted methods of community organization. Indian women are encouraged to form homemakers' clubs patterned after rural women's institutes and the Branch assists the clubs through counselling and material aid. Indian band councils are encouraged to exercise to the fullest extent the powers and duties granted them under the Indian Act.

Through the co-operation and assistance of university extension departments, provincial education authorities and various health and welfare organizations, the Branch-sponsored programs for community development have been greatly expanded in recent years. The Extension Department of St. Francis Xavier University has directed an intensive program in community action by Indians on the Sydney and other reserves in Nova Scotia. Leadership training courses for Indians have been held annually under the auspices of the Welfare Council of Greater Winnipeg. Universities are assisting in planning and developing programs for Indian groups in Alberta, British Columbia and Quebec. In Ontario, the Community Programs Branch of the provincial Department of Education has planned and organized a special leadership training course for Indian band chiefs and councillors.

The Eskimos*

Each year, an increasing number of Canada's 11,500 Eskimos who live on the northern mainland and Arctic islands begin the transition from a nomadic life of hunting to regular wage employment. Growing economic development in the North, coupled with a decrease in some types of game, is attracting the Eskimo people to northern centres of population. More and more of them are finding employment as skilled tradesmen and moving into homes in settled communities. The Government of Canada, through the Department of Northern Affairs and National Resources and other agencies, is helping the Eskimo people through this adjustment period by providing education, family welfare services and technical training.

One of the most encouraging economic developments in the Arctic is the success of Eskimo co-operatives with their basic approach, already traditional with the Eskimos, of pooled labour and shared harvests. During 1961, five Eskimo fishing co-operatives were catching, processing and shipping Arctic char to markets in southern Canada. Soapstone carvings and graphic art, valued at \$78,000, were produced by the West Baffin Eskimo Co-operative during the year; the work maintained its standard of excellence and continued to bring Eskimos, and Canada too, world-wide recognition in the field of art. The sealskin handicrafts industry produced a variety of high-quality items that were in great demand in southern Canada. By conservative estimate, Eskimo co-operatives brought more than a quarter of a million dollars in cash to northern communities during 1961. An additional \$200,000 a year is earned by people in the North through participation in rehabilitation projects which produce and market a wide variety of goods and services.

In addition to the Eskimos who are self-employed as co-operative members, skilled Eskimo tradesmen are working in many other special fields. In the nickel mine at Rankin Inlet, some 85 Eskimos are regularly employed; nearly 100 are working on the Distant Early Warning Line; and about 40 are employed by the Hudson's Bay Company. In 1961, the young Eskimo Assistant Chief of the Eskimo Rehabilitation Centre at Frobisher Bay was a key speaker at the Northern Development Conference in Edmonton; and an Eskimo who was previously Manager of the Arts and Crafts Section at the Frobisher Bay Rehabilitation Centre became Manager of the CBC Station at Inuvik. An Eskimo girl employed by the Welfare Division of the Northern Administration Branch edits *Inuktitut*, Canada's only Eskimo-language magazine, and two Eskimo girls, one in Montreal and one in Frobisher Bay, produce Eskimo-language broadcasts for the CBC Northern Service. In many northern communities, Eskimos work as diesel mechanics, electricians, carpenters and power-plant operators; women are clerks, hospital aides and waitresses. About 40 p.c. of the Eskimos still remain outside of main centres of economic and government activity and continue to live as their fathers lived—by hunting, trapping and fishing.

* Prepared in the Information Section, Department of Northern Affairs and National Resources, Ottawa.

For the Eskimo people, on the land and in wage employment, education and vocational training form a vital bridge to future development. New schools have been built in most Arctic communities where the majority of the population is Eskimo, and more than 2,000 Eskimo children were enrolled in 1961. Because of the nomadic way of life of their parents, many children live in pupil residences during the school year. Vocational training and adult education courses are organized to help unskilled Eskimos toward wage employment and to improve the skills of those already employed.

The Eskimo people, as Canadian citizens, receive the same social benefits as those who live farther south—family allowances, old age assistance and disabled persons' allowances. Under a new program of loans and grants initiated by the Department of Northern Affairs and National Resources, more and more Eskimos are owning their own homes. A thousand-dollar subsidy, consistent with aid in related types of programs across Canada, covers part of the cost; the owner borrows the balance from the Eskimo Loan Fund and repays it on terms adjusted to his income opportunities. A man's labour in building his house helps to keep its cost to a minimum and all financial arrangements encourage the Eskimo to remain self-reliant and independent in changing economic conditions. Where game is plentiful, community freezers are being used in a growing number of communities to store game and fish taken during the summer months. With the better use of local food, warm housing and higher cash incomes for many Eskimos, the threats of malnutrition and disease are dwindling. The natural increase of the Eskimo population was 3.3 p.c. in 1960.

For several thousand years the Eskimos have survived in Canada's northland on comparatively meagre resources. They are a hardy and intelligent people. With their native ability to adapt to changing circumstances, they are learning new skills and trades and proving that they can make an increasing contribution to the development of the North.

Section 4.—Statistics of World Population

World population figures given in Table 8 are from the United Nations *Population and Vital Statistics Report* for October 1961 and, except as otherwise noted, are mid-year estimates for 1960. The area figures are from the United Nations *Statistical Yearbook, 1960*.

Estimated Population of the World by Continents.—The statement below presents adjusted estimates of the 1960 mid-year population of the world by continental divisions. These aggregates do not coincide exactly with the sum of the figures for individual countries and territories because they include, in addition, adjustments for over- and under-enumeration, over-estimation, data for categories of population not regularly included in the official figures, and approximations for those countries that have not provided official 1960 data. The estimates are as follows:—

<i>Continental Division</i>	<i>Number</i>
	'000
Africa.....	244,000
North America.....	265,000
South America.....	140,000
Asia (includes Syria and Asiatic Turkey).....	1,665,000
Europe (includes European Turkey).....	427,000
Oceania (includes Hawaii).....	16,400
Union of Soviet Socialist Republics (Asia and Europe).....	214,400
WORLD TOTAL.....	2,971,800
Commonwealth countries (at Jan. 1, 1962).....	717,948

8.—Areas and Populations of the Countries or Areas of the World, 1960

NOTE.—Status of independency or dependency is as at Jan. 1, 1962. Members of the Commonwealth and the Territories for which the British or Commonwealth members are responsible (at Jan. 1, 1962) are indicated with an asterisk (*).

Continent and Country	Area	Population
	sq. miles	'000
Africa		
INDEPENDENT STATES		
Cameroun.....	166,989	3,240
Central African Republic.....	238,224	1,227
Chad.....	495,754	2,660 ¹
Congo (Brazzaville).....	132,047	795 ¹
Congo (Leopoldville).....	905,381	14,150
Dahomey.....	44,696	1,934 ¹
Ethiopia.....	457,267	20,000
Gabon.....	103,089	440
*Ghana.....	91,843	6,691 ¹
Guinea.....	94,926	3,000
Ivory Coast.....	124,503	3,230
Liberia.....	43,000	1,290
Libya.....	679,360	1,195
Madagascar.....	227,800	5,393
Mali.....	464,874	4,100
Mauritania.....	419,270	740
Morocco.....	171,305	11,626 ¹
*Niger.....	458,995	2,850
*Nigeria.....	339,169	34,296
Senegal.....	76,124	3,140
*Sierra Leone.....	27,925	2,450
Somalia.....	246,202	1,990 ¹
South Africa ²	472,359	14,929
Sudan.....	967,501	11,770 ³
Tanganyika.....	361,800	9,238
Togo.....	22,008	1,440
Tunisia.....	48,332	4,168
United Arab Republic.....	457,329	30,677
Egypt.....	386,101	25,929
Syria.....	71,228	4,748
Upper Volta.....	105,839	3,635
TERRITORIES AND DEPENDENCIES		
Britain—		
*Basutoland.....	11,716	685
*Bechuanaland.....	275,000	340
*Gambia.....	4,003	308
*Kenya.....	224,960	6,551
*Mauritius, excl. dependencies.....	720	639
Rodrigues.....	42	17
Other dependencies.....	47	2
*Rhodesia and Nyasaland, Federation of.....	483,829	8,330
Northern Rhodesia.....	283,130	2,480
Nyasaland.....	45,368	2,880
Southern Rhodesia.....	150,333	3,070
*St. Helena, excl. dependencies.....	47	5
Ascension, Tristan da Cunha and other dependencies.....	115	..
*Seychelles.....	156	41
*Swaziland.....	6,704	259
*Uganda.....	93,981	6,682
*Zanzibar and Pemba.....	1,020	307
France—		
Algeria.....	919,593	11,020
Comoro Islands.....	838	183
French Somaliland.....	8,494	67
French Southern and Antarctic Territories.....	2,918	4
Reunion.....	969	336
Portugal—		
Angola.....	481,352	4,605
Cape Verde Islands.....	1,557	199
Mozambique.....	302,329	6,385
Portuguese Guinea.....	13,948	570
São Tomé and Príncipe.....	372	67

For footnotes, see end of table, p. 160.

8.—Areas and Populations of the Countries or Areas of the World, 1960—continued

Continent and Country	Area	Population
	sq. miles	'000
Africa—concluded		
TERRITORIES AND DEPENDENCIES—concluded		
Spain—		
Ini.....	579	54
Spanish Equatorial Region.....	10,831	218
Spanish North Africa.....	82	146
Spanish Sahara.....	102,703	25
TRUST TERRITORIES		
Cameroons [Br. Adm. until June 1, 1961, when the northern part joined Nigeria (Br.) and Oct. 1, 1961, when the southern part joined Cameroun Republic.].....	34,081	1,652 ^a
Ruanda-Urundi (Belg. Adm.).....	20,916	4,901
FORMER MANDATED TERRITORY		
(South Africa)		
South West Africa ^a	318,099	572
America, North		
INDEPENDENT STATES		
*Canada.....	3,851,809	18,238 ^a
Costa Rica.....	19,575	1,171
Cuba.....	44,218	6,797
Dominican Republic.....	18,816	2,994
El Salvador.....	8,164	2,612
Guatemala.....	42,042	3,759
Haiti.....	10,714	3,505 ^a
Honduras.....	43,277	1,950
Mexico.....	760,375	34,300
Nicaragua.....	57,143	1,477
Panama.....	28,753	1,055
United States of America.....	3,615,213	180,670 ^a
TERRITORIES AND DEPENDENCIES		
Britain—		
*Bahama Islands.....	4,400	105
*Bermuda.....	20	45
*British Honduras.....	8,866	92
*Virgin Islands (Br.).....	67	7
West Indies—		
*Antigua.....	171	61
*Barbados.....	166	232
*Cayman Islands.....	100	8
*Dominica.....	305	60
*Grenada.....	133	89
*Jamaica.....	4,411	1,607
*Montserrat.....	32	12
*St. Kitts-Nevis and Anguilla.....	153	57
*St. Lucia.....	238	86
*St. Vincent.....	150	80
*Trinidad and Tobago.....	1,980	832
*Turks and Caicos Islands.....	166	6
Denmark—		
Greenland.....	840,001	31
France—		
Guadeloupe and dependencies.....	687	270
Martinique.....	425	277
St. Pierre and Miquelon.....	93	5
Netherlands—		
Netherlands Antilles.....	271	190 ^a

For footnotes, see end of table, p. 160.

8.—Areas and Populations of the Countries or Areas of the World, 1960 —continued

Continent and Country	Area	Population
	sq. miles	'000
America, North—concluded		
TERRITORIES AND DEPENDENCIES—concluded		
United States—		
Canal Zone.....	553	42 ^s
Puerto Rico.....	3,435	2,35 ^{s8}
Virgin Islands (U.S.).....	133	32 ^s
America, South		
INDEPENDENT STATES		
Argentina.....	1,072,748	20,956
Bolivia.....	424,163	3,462 ¹
Brazil.....	3,287,204	65,743 ⁹
Chile.....	286,397	7,627
Colombia.....	439,513	14,532
Ecuador.....	104,506	4,298 ¹⁰
Paraguay.....	167,047	1,768
Peru.....	496,223	10,857 ¹¹
Uruguay.....	72,172	2,827
Venezuela.....	352,143	6,706 ¹²
TERRITORIES AND DEPENDENCIES		
Britain—		
*British Guiana.....	83,000	566
*Falkland Islands, excl. dependencies.....	4,618	2
France—		
French Guiana.....	35,135	31
Netherlands—		
Surinam.....	55,144	270 ¹³
Asia		
INDEPENDENT STATES		
Afghanistan.....	250,966	13,800
Bahrain.....	231	147
*Bhutan.....	19,305	670
Burma.....	261,789	20,662
Cambodia.....	66,607	4,952
*Ceylon.....	25,332	9,625 ¹
China (mainland).....	3,691,512	646,530 ¹
China (Taiwan and Pescadores).....	13,885	10,611 ¹⁴
*Cyprus.....	3,572	563
*India, incl. former Portuguese India (Damão, Diu and Gôa) and Kashmir-Jammu.....	1,261,611	433,060
Indonesia.....	575,894	92,600
Iran.....	636,294	20,182
Iraq.....	171,600	7,085
Israel.....	7,992	2,114
Japan.....	142,726	93,200
Jordan.....	37,301	1,695
Korea.....	85,286	32,915
North Korea.....	47,862	8,250
Republic of Korea.....	37,424	24,665
Kuwait.....	6,000	223
Laos.....	91,429	1,800
Lebanon.....	4,015	1,646
*Malaya, Federation of.....	50,700	6,909
*Maldiv Islands.....	115	89
Mongolian People's Republic.....	591,121	1,075
Muscat and Oman.....	82,000	500
Nepal.....	54,362	9,180
*Pakistan.....	364,797	92,727
Philippines.....	115,707	27,500
Qatar.....	8,500	45
Saudi Arabia.....	617,762	6,036 ¹

For footnotes, see end of table, p. 160.

8.—Areas and Populations of the Countries or Areas of the World, 1960—continued

Continent and Country	Area	Population
	sq. miles	'000
Asia—concluded		
INDEPENDENT STATES—concluded		
*Sikkim.....	2,744	150
Thailand.....	198,456	22,295
Trucial Oman.....	32,278	86
Turkey (Asia and Europe).....	301,381	27,561
Viet Nam—		
North Viet Nam.....	59,934	15,200
Republic of Viet Nam.....	65,948	14,100
Yemen.....	75,290	5,000
TERRITORIES AND DEPENDENCIES		
Britain—		
Aden—		
*Aden Colony.....	75	155
*Aden Protectorate.....	112,000	660
*Brunei.....	2,226	84
*Hong Kong.....	391	2,981
*North Borneo.....	29,387	454
*Sarawak.....	47,500	745
*Singapore.....	224	1,634
Netherlands—		
Netherlands New Guinea.....	160,618	725
Portugal—		
Macau.....	6	220
Portuguese Timor.....	5,763	502
FORMER MANDATED TERRITORY (Britain)		
Palestine.....	10,459	1,912 ¹
Gaza Strip.....	78	377
MILITARY GOVERNMENT (United States)		
Bonin Islands.....	40	⁴
Ryukyu Islands.....	848	865
Europe		
INDEPENDENT STATES		
Albania.....	11,100	1,607
Andorra.....	175	8
Austria.....	32,375	7,081 ³
Belgium.....	11,779	9,153 ³
*Britain.....	94,215	52,539
England and Wales.....	58,345	45,862
Northern Ireland.....	5,459	1,423
Scotland.....	30,411	5,254
Bulgaria.....	42,729	7,867
Czechoslovakia.....	49,366	13,649
Denmark.....	16,619	4,581 ³
Finland.....	130,120	4,456
France (Metropolitan).....	212,822	45,540
Germany—		
Eastern Germany.....	41,479	16,213 ³
Federal Republic of Germany.....	95,738	53,373 ³
East Berlin.....	156	1,085 ³
West Berlin.....	186	2,204 ³
Greece.....	51,182	8,327
Holy See.....	15	1
Hungary.....	35,919	10,002

For footnotes, see end of table, p. 160.

8.—Areas and Populations of the Countries or Areas of the World, 1960—continued

Continent and Country	Area	Population
	sq. miles	'000
Europe—concluded		
INDEPENDENT STATES—concluded		
Iceland.....	39,768	176 ³
Ireland.....	27,136	2,834
Italy.....	116,304	49,361
Liechtenstein.....	61	16
Luxembourg.....	998	314 ³
Monaco.....	15	22
Netherlands.....	12,529	11,480 ³
Norway.....	125,065	3,586 ³
Poland.....	120,359	29,703
Portugal, incl. the Azores and Madeira Islands.....	35,599	9,125
Romania.....	91,699	18,403
San Marino.....	24	17
Spain, incl. Balearic and Canary Islands.....	194,396	30,128
Sweden.....	173,623	7,480 ³
Switzerland.....	15,941	5,351 ³
Yugoslavia.....	98,766	18,655
TERRITORIES AND DEPENDENCIES		
Britain—		
*Channel Islands.....	75	109
*Gibraltar.....	2	26
*Isle of Man.....	227	48
*Malta and Gozo.....	122	328
Denmark—		
Faeroe Islands.....	540	34 ³
Norway—		
Svalbard and Jan Mayen Islands.....	24,101	11. ¹⁶
Oceania		
INDEPENDENT STATES		
*Australia, excl. aborigines.....	2,974,583	10,281
*New Zealand.....	103,736	2,372
TERRITORIES AND DEPENDENCIES		
Australia—		
*Christmas Island.....	60	3
*Cocos (Keeling) Islands.....	5	1
*Norfolk Island.....	14	1
*Papua.....	90,540	503
Britain—		
*British Solomon Islands.....	11,500	124
*Fiji Islands.....	7,055	394
*Gilbert and Ellice Islands.....	349	45
*Pitcairn.....	2	4
*Tonga.....	269	64
France—		
French Polynesia.....	1,544	76
New Caledonia and dependencies.....	7,236	77
New Zealand—		
*Cook Islands.....	90	18
*Niue.....	100	5
*Tokelau Islands.....	4	2
United States—		
American Samoa.....	76	20
Guam.....	206	67

For footnotes, see end of table, p. 160.

8.—Areas and Populations of the Countries or Areas of the World, 1960—concluded

Continent and Country	Area	Population
	sq. miles	'000
Oceania—concluded		
TRUST TERRITORIES		
*Nauru (Aust., N.Z., and Br. Adm.).....	8	4
*New Guinea (Aust. Adm.).....	93,000 ¹⁷	1,402
Pacific Islands (U.S. Adm.).....	687 ¹⁷	76
*Western Samoa (N.Z. Adm.).....	1,130	107
CONDOMINIUMS		
*Canton and Enderbury (Anglo-American).....	20	4
*New Hebrides (Anglo-French).....	5,700	50
Union of Soviet Socialist Republics		
Union of Soviet Socialist Republics.....	8,649,821	214,400

¹ Latest official estimate. ² Excluding Walvis Bay. ³ *De jure* population. ⁴ Fewer than 500 persons. ⁵ Including data for Northern Cameroons which, on June 1, 1961, became a province in the Northern Region of Nigeria. ⁶ Including Walvis Bay. ⁷ Including armed forces overseas. ⁸ *De jure* population but including armed forces stationed in the area. ⁹ Excluding Indian jungle population numbering 45,429 in 1950. ¹⁰ *De jure* population but excluding Indian jungle population. ¹¹ Including estimate of 350,000 for Indian jungle population. ¹² Excluding Indian jungle population numbering 56,705 in 1950. ¹³ Excluding Indian and Negro population living in tribes estimated at 38,000 in 1959. ¹⁴ Excluding armed forces and foreigners. ¹⁵ Less than one square mile. ¹⁶ Inhabited only during winter season; included also in the *de jure* population of Norway. ¹⁷ Land area only.

CHAPTER IV.—IMMIGRATION AND CITIZENSHIP

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found facing p. 1 of this volume.*

PART I.—IMMIGRATION AND EMIGRATION*

The history of immigration and the Immigration Act and Regulations is dealt with in detail in a special article entitled "Developments in Canadian Immigration" appearing in the 1957-58 Year Book at pp. 154-176. Supplementing that material is an article on the "Integration of Postwar Immigrants" at pp. 176-178 of the 1959 edition.

Section 1.—Immigration Policy and Administration

Since the end of the Second World War it has been the policy of the Government of Canada to stimulate the growth of the population by selective immigration. Efforts are made to choose immigrants of prospective adaptability to the Canadian way of life and to admit them at such times and in such numbers as employment conditions warrant.

Federal immigration policy is governed by the provisions of the Immigration Act and Regulations, which permit the admission to Canada of British subjects by birth or naturalization in Britain, Australia, New Zealand or South Africa; citizens of Ireland and of the United States; and French citizens born or naturalized in France or on the islands of St. Pierre and Miquelon. All, however, must be in good health, be of good character, and have sufficient means to maintain themselves until they have secured employment. Other classes of admissible immigrants consist of persons considered to be desirable in the light of social and economic conditions prevailing in Canada at the time, and possessed of qualifications for successful integration. Also admissible are certain categories of close relatives of citizens or legal permanent residents of Canada where the sponsor, in Canada, is in a position to receive and care for the prospective immigrants who must satisfy the requirements of the Immigration Act and Regulations. Agreements are in effect with the governments of India, Pakistan and Ceylon for the admission annually of 300, 100 and 50 persons, respectively, from those countries in addition to certain close relatives.

The Immigration Branch of the Department of Citizenship and Immigration administers the Immigration Act and Regulations. Twenty-seven visa offices are located abroad at London, Liverpool, Leeds, Bristol, Glasgow, Belfast, Dublin, Paris, Brussels, Berne,

* Sections 1 and 2 of this Part were revised under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

The Hague, Copenhagen, Cologne, Berlin, Hamburg, Munich, Stuttgart, Vienna, Oslo, Stockholm, Helsinki, Lisbon, Rome, Athens, Tel Aviv, New Delhi and Hong Kong. Four offices in the United States—at New York, Chicago, San Francisco and Denver—furnish information and counselling but do not issue visas. Personnel at all posts are kept in close touch with economic conditions in Canada and thus are able to advise immigrants regarding prospects for successful settlement. Examination of immigrants and visitors is carried out at 347 ports of entry on the Canadian coasts, at points along the International Boundary, and at certain airports.

A primary objective of administration is satisfactory settlement. The Federal Government assists immigrants in establishing themselves in the Canadian community through the work of the Immigration Branch Settlement Service, the Canadian Citizenship and Canadian Citizenship Registration Branches and other government agencies, and co-operates closely with several voluntary agencies having the same objective.

Section 2.—Immigration Statistics

Postwar Immigration.—The extent of immigration to Canada in any period is affected both by domestic conditions and by conditions abroad. However, these influences are seldom immediately decisive. News of good economic conditions in Canada pre-disposes people in favour of this country but, because the immigration process usually takes from six to eighteen months, actual immigration is not always fully coincidental with the economic situation, so that immigration may at times be slight in good years but appear unduly heavy in less buoyant periods. The time-lag caused by selection, medical examination and documentation is unavoidable. Transportation is often another delaying factor and to these considerations must be added the effect of seasonal unemployment in Canada, which tends to discourage immigration during the months from November to April.

Since the end of World War II there have been wide annual fluctuations in immigration to Canada caused mainly by economic and political factors. Many of the persons who arrived in 1946 and 1947 were the wives and children of Canadian service men and their numbers were dictated by the availability of shipping. In 1948, as more shipping became available, the number of immigrants doubled. In addition to the large movement from the British Isles, thousands of displaced persons were admitted and Germans and Italians began to come forward in appreciable numbers after having been removed from the enemy alien category. As the high level of immediate postwar economic activity levelled off, there was a drop of 30,000 in the number of immigrants entering in 1949 compared with 1948, and a further drop of 20,000 in 1950. Then the outbreak of war in Korea created a new stimulus to industry and caused shortages of labour; at the same time fear of war in Europe made Canada seem a desirable haven. Thus in 1951 immigration increased nearly threefold and remained in excess of 150,000 for the following three years. Very significant numbers of Germans and Italians were admitted and the gap between them and the British Isles group was narrowed. Another minor economic setback in 1954 caused immigration to fall in 1955 by some 45,000 but, with the return of better times in North America and the deterioration of the political situation in Europe, immigration again rose by 55,000 in 1956. The Hungarian revolution and the Suez crisis of 1956 had a sharp impact on Canadian immigration in 1957 when 282,164 persons were admitted, including 31,643 from Hungary and 108,989 from the British Isles. This was the largest number of immigrants to enter Canada since 1913.

The conclusion of the Suez affair and the suppression of the Hungarian revolt restored some measure of calm in Europe. Canada's economy suffered a recession in 1956 and 1957 while Europe's economic position improved, as a result of which only 124,851 immigrants came to Canada in 1958. Britain's recovery from the war and its aftermath was reflected in the fact that for the first time in the postwar years the British Isles group of arrivals was not the largest—persons from Italy were in first place, numbering 27,043 compared

with 24,777 from the British Isles. This situation continued from 1959 through 1961; total arrivals dropped from 106,928 in 1959 to 104,111 in 1960 and to 71,689 in 1961. In each of these years, the number from Italy remained in first place above the number from the British Isles. The main contributing factors to this decline in immigrant arrivals since 1959 have been: (1) the upsurge in the economies of those European countries from which Canada has received the majority of its immigrants and (2) the increasing emphasis placed on selecting the immigrant who has sufficient funds and the necessary know-how to establish himself in a business or industry of his own, as well as on the immigrant with special skills or qualifications which would permit his ready integration into the Canadian labour force.

Immigrants coming from the British Isles during the period 1946-61, inclusive, numbered 592,514 and represented 28.5 p.c. of the total immigration to Canada in that period. Other large groups came from Italy—273,971, representing 13.2 p.c. of the total; Germany—241,005, representing 11.1 p.c.; the Netherlands—149,187, representing 7.3 p.c.; the United States—156,641, representing 7.6 p.c.; and Poland—92,226, representing 4.4 p.c.

In each postwar year up to and including 1957, the British Isles group was the largest, ranging from a low of 12,669 in 1950 to a high of 108,989 in 1957. From 1958 to 1961 immigrants from Italy headed all groups. Immigrants from the United States formed the second largest group in 1946 and 1947, from Poland in 1948, 1949 and 1950, from Germany during the years from 1951 to 1954, from Italy in 1955 and 1956, from Hungary in 1957, and from the British Isles in 1958, 1959, 1960 and 1961. During the whole postwar period, immigration from the United States has remained relatively constant, ranging from a high of 11,516 in 1961 to a low of 7,393 in 1948; the annual average for the period was 9,790.

Total immigration to Canada for the years 1946-61, inclusive, was 2,076,919. The yearly totals for this period are shown in Table 1, together with annual figures back to 1913, the peak year of immigration into Canada.

1.—Immigrant Arrivals, 1913-61

NOTE.—Figures for 1852-93 are given in the 1942 Year Book, p. 153, and for 1894-1912 in the 1948-49 edition, p. 175.

Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals
	No.		No.		No.		No.		No.
1913.....	400,870	1923.....	133,729	1933.....	14,382	1943.....	8,504	1953.....	168,868
1914.....	150,484	1924.....	124,164	1934.....	12,476	1944.....	12,801	1954.....	154,227
1915.....	36,665	1925.....	84,907	1935.....	11,277	1945.....	22,722	1955.....	109,946
1916.....	55,914	1926.....	135,982	1936.....	11,643	1946.....	71,719	1956.....	164,857
1917.....	72,910	1927.....	158,886	1937.....	15,101	1947.....	64,127	1957.....	282,164
1918.....	41,845	1928.....	166,783	1938.....	17,244	1948.....	125,414	1958.....	124,851
1919.....	107,698	1929.....	164,993	1939.....	16,994	1949.....	95,217	1959.....	106,928
1920.....	138,824	1930.....	104,806	1940.....	11,324	1950.....	73,912	1960.....	104,111
1921.....	91,728	1931.....	27,530	1941.....	9,329	1951.....	194,391	1961.....	71,689
1922.....	64,224	1932.....	20,591	1942.....	7,576	1952.....	164,498		

Admissions by country of last permanent residence are given in Table 2 for the years 1957-61 only. During that five-year period, 27.8 p.c. of the immigration flow came from Britain and Ireland, 55.7 p.c. from Continental Europe, 8.1 p.c. from the United States and 8.4 p.c. from all other countries.

2.—Immigrant Admissions by Country of Last Permanent Residence, 1957-61

NOTE.—Comparable figures for 1946-49 are given in the 1951 Year Book, p. 143, for 1950-52 in the 1956 edition, p. 182 and for 1953-55 in the 1959 edition, p. 179; figures in less detail for 1939-45 appear in the 1950 edition, p. 186.

Country	1957	1958	1959	1960	1961
	No.	No.	No.	No.	No.
Commonwealth —					
British Isles—					
England.....	79,811	18,011	12,825	13,570	8,499
Northern Ireland.....	4,988	1,140	970	1,035	688
Scotland.....	22,180	5,060	4,053	4,561	2,578
Wales.....	1,724	456	311	373	91
Lesser Isles.....	286	110	63	46	14
Totals, British Isles.....	108,989	24,777	18,222	19,585	11,870
Australia.....	2,772	1,898	1,109	1,273	1,142
Hong Kong.....	866	1,752	2,018	1,146	710
India.....	186	325	585	505	568
Malta.....	586	447	419	468	187
New Zealand.....	573	446	403	384	290
Union of South Africa.....	464	367	287	503	1
West Indies.....	1,162	1,192	1,196	1,168	1,126
Other Commonwealth.....	774	617	507	502	578
Totals, Commonwealth.....	116,372	31,821	24,746	25,534	16,471
Republic of Ireland.....	5,358	1,226	815	799	415
Africa ²	1,866	699	308	154	838 ³
Asia ²	1,119	1,158	779	395	270
Europe—²					
Austria.....	5,714	4,544	1,510	2,038	1,131
Belgium.....	3,909	1,776	1,471	1,282	1,013
Finland.....	2,684	1,177	845	964	339
France.....	5,869	2,727	2,153	2,944	2,320
Germany.....	28,430	13,888	10,423	10,774	6,231
Greece.....	5,460	5,190	4,867	4,856	3,766
Hungary.....	31,643	2,362	589	507	287
Italy.....	27,740	27,043	25,655	20,681	14,161
Netherlands.....	11,934	7,420	5,243	5,429	1,787
Poland.....	690	2,292	3,470	2,668	2,391
Portugal.....	4,423	1,938	4,080	5,023	2,762
Scandinavian Countries—					
Denmark.....	7,683	1,746	1,359	1,115	475
Other.....	2,492	978	766	711	329
Switzerland.....	1,800	1,024	855	1,048	805
Yugoslavia.....	1,048	984	958	881	852
Other.....	956	509	598	930	806
North America—²					
Mexico.....	124	104	98	115	109
United States of America.....	11,008	10,846	11,338	11,247	11,516
Other.....	119	131	157	158	154
South America²	2,188	1,980	1,565	1,666	1,138
Middle East—²					
Israel.....	482	531	1,490	1,532	652
Lebanon.....	401	312	377	283	293
Other.....	588	371	356	300	255
Other Countries	64	74	57	77	113
Totals, All Countries	282,164	124,851	106,928	104,111	71,689

¹ Included in Africa.
South Africa.

² Excludes Commonwealth countries.

³ Includes 531 from Republic of

Other analyses of the content of the immigration movement in recent years are given in Tables 3 to 9. The numbers of persons deported from Canada for various reasons in the years 1952-61 are shown in Table 10.

Sex, Age and Marital Status.—In the ten-year period 1952-61 adult males comprised 39.0 p.c. of the immigrant arrivals, adult females 35.2 p.c. and children under 18 years of age the remaining 25.8 p.c. Without relation to age, 52.4 p.c. of the newcomers were males.

3.—Sex Distribution of Immigrants as Adult Males, Adult Females and Children, 1952-61

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Adult Males	Adult Females	Under 18 Years		Total
			Males	Females	
	No.	No.	No.	No.	No.
1952.....	66,083	53,443	23,766	21,206	164,498
1953.....	68,269	56,425	23,153	21,021	168,868
1954.....	64,551	51,690	19,980	18,006	154,227
1955.....	42,425	40,120	14,403	12,998	109,946
1956.....	67,880	55,574	21,661	19,742	164,857
1957.....	115,765	92,202	38,461	35,736	282,164
1958.....	44,008	48,655	16,622	15,566	124,851
1959.....	37,110	41,891	14,366	13,561	106,928
1960.....	37,653	40,241	13,365	12,852	104,111
1961.....	22,778	30,648	9,228	8,935	71,689

In 1961, 74.6 p.c. of the males and 80.8 p.c. of the females arriving were 15 years of age or over as compared with 77.2 p.c. and 79.1 p.c., respectively, in 1960. Of those arriving in 1961 who were 15 years of age or over, 52.4 p.c. were married, 40.7 p.c. were single and 6.4 p.c. were widowed or divorced. The total number of females coming into Canada has been higher than the total number of males in each year since 1957. In 1961 there were 180 more single females than single males, although there was a considerable excess of males in the two younger age groups. Females exceeded males by 4,815 in the married category, by 1,986 in the widowed category and by 496 in the divorced or separated category.

4.—Sex and Marital Status of Immigrant Arrivals, by Age Group, 1961

Sex and Age Group	Single	Married	Widowed	Divorced	Separated	Total
	No.	No.	No.	No.	No.	No.
Males—						
0 - 14 years.....	8,144	—	—	—	—	8,144
15 - 19 ".....	2,575	35	—	—	—	2,610
20 - 24 ".....	4,395	1,170	1	4	2	5,572
25 - 29 ".....	2,461	2,717	6	31	13	5,228
30 - 39 ".....	1,247	4,318	17	89	21	5,692
40 - 49 ".....	223	2,021	21	66	15	2,346
50 - 59 ".....	68	1,108	29	30	6	1,251
60 years or over.....	54	889	284	24	12	1,263
Totals, Males.....	19,167	12,258	368	244	69	32,106
Females—						
0 - 14 years.....	7,581	—	—	—	—	7,581
15 - 19 ".....	2,382	1,007	1	1	2	3,393
20 - 24 ".....	4,573	4,154	1	27	8	8,763
25 - 29 ".....	2,505	3,573	13	70	8	6,169
30 - 39 ".....	1,537	4,417	82	157	38	6,231
40 - 49 ".....	418	1,978	207	138	35	2,776
50 - 59 ".....	167	1,222	655	138	65	2,247
60 years or over.....	184	722	1,395	76	46	2,423
Totals, Females.....	19,347	17,073	2,354	607	202	39,583

Birthplace, Nationality and Origin.—Of the immigrant arrivals in 1961, 23.8 p.c. were born in Commonwealth countries or in the Republic of Ireland, compared with 24.6 p.c. in 1960 and 22.4 p.c. in 1959. Of the 1961 newcomers, 25.3 p.c. were born in Italy or Greece, 13.0 p.c. in Germany, France or the Netherlands, 7.2 p.c. in Poland or Yugoslavia, and 12.6 p.c. in the United States.

5.—Birthplaces of Immigrant Arrivals, 1959-61

NOTE.—Figures from 1942 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Birthplace	1959	1960	1961	Birthplace	1959	1960	1961
No.	No.	No.	No.	No.	No.	No.	No.
Commonwealth—				Europe—concluded			
British Isles—				Finland.....	900	1,007	355
England.....	11,168	11,635	7,471	France.....	1,769	2,186	1,789
Northern Ireland.....	1,045	1,143	806	Germany.....	9,704	9,920	5,686
Scotland.....	4,326	4,756	2,845	Greece.....	4,898	4,893	3,771
Wales.....	409	496	273	Hungary.....	1,362	1,470	823
Lesser Isles.....	45	30	21	Italy.....	26,334	20,758	14,373
Totals, British Isles....	16,993	18,060	11,416	Netherlands.....	5,092	5,268	1,839
Australia.....	929	1,227	1,042	Norway.....	366	353	184
Canada.....	795	754	788	Poland.....	4,225	3,552	2,774
India.....	770	750	767	Portugal.....	4,162	5,099	2,846
Malta.....	434	500	202	Romania.....	541	632	526
New Zealand.....	384	417	314	Switzerland.....	727	850	646
Union of South Africa.....	495	718	1	Union of Soviet Socialist			
West Indies.....	1,258	1,199	1,215	Republics ¹	1,033	978	570
Other Commonwealth.....	684	756	652	Yugoslavia.....	2,624	3,880	2,378
Republic of Ireland.....	1,243	1,235	656	Other.....	825	1,293	1,022
Africa².....	395	333	990	Middle East—²			
Asia—²				Egypt.....	229	202	138
China.....	2,367	1,229	760	Israel.....	518	420	201
Japan.....	193	169	125	Lebanon.....	350	272	252
Other.....	438	99	176	Turkey.....	311	291	298
Europe—²				Other.....	56	44	58
Austria.....	975	1,077	648	North America—²			
Belgium.....	960	899	768	Mexico.....	89	105	97
Czechoslovakia.....	357	355	302	United States of America...	8,873	8,740	9,015
Denmark.....	1,365	1,130	488	Other.....	156	174	183
				South America².....	544	578	450
				Grand Totals.....	106,928⁴	104,111⁵	71,689⁶

¹ Included in Africa.
includes 206 not stated.
and 104 from other countries.

² Excludes Commonwealth countries.

³ Includes 4 born at sea and 235 from other countries.

⁴ In both Europe and Asia.

⁵ Includes 2 born at sea

Out of every hundred immigrants admitted to Canada during the three-year period 1959-61, 20 were citizens of Italy, 19 were British subjects, 14 were citizens of the United States, 8 of Germany, 5 of Greece and 4 of Portugal; other nationalities made up the remaining 30.

6.—Citizenship of Immigrant Arrivals, 1959-61

NOTE.—Figures from 1930 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Country of Citizenship	1959	1960	1961	Country of Citizenship	1959	1960	1961
No.	No.	No.	No.	No.	No.	No.	No.
Australia.....	1,118	1,403	1,198	Egypt.....	37	33	34
Austria.....	897	1,102	650	Finland.....	890	989	348
Belgium.....	875	792	727	France.....	1,933	2,395	1,987
Britain and colonies.....	20,372	21,226	13,932	Germany.....	10,401	10,596	6,060
Central America.....	14	14	18	Greece.....	4,894	4,922	3,794
Ceylon.....	24	21	32	Hungary.....	626	534	270
China.....	2,313	1,158	706	India.....	582	534	589
Czechoslovakia.....	32	42	29	Ireland.....	950	1,056	549
Denmark.....	1,381	1,133	483	Israel.....	1,577	1,581	674

6.—Citizenship of Immigrant Arrivals, 1959-61—concluded

Country of Citizenship	1959	1960	1961	Country of Citizenship	1959	1960	1961
No.	No.	No.	No.	No.	No.	No.	No.
Italy.....	26,564	21,040	14,352	Sweden.....	287	254	123
Japan.....	190	159	114	Switzerland.....	725	836	630
Lebanon.....	383	305	283	Turkey.....	217	218	204
Luxembourg.....	21	14	10	Union of South Africa.....	341	640	470
Mexico.....	86	101	82	Union of Soviet Socialist Republics.....	36	182	105
Morocco.....	126	48	178	United States.....	10,240	10,060	10,395
Netherlands.....	5,310	5,480	1,897	Yugoslavia.....	944	873	1,001
New Zealand.....	388	412	312	Other African.....	38	5	11
Norway.....	363	349	180	Other Asian.....	60	50	63
Pakistan.....	64	98	77	Other European.....	213	179	180
Poland.....	3,509	2,704	2,411	Stateless.....	2,785	4,230	2,404
Portugal.....	4,176	5,108	2,861	Others.....	87	101	219
South America.....	451	475	431				
Southern Rhodesia.....	26	56	61				
Spain.....	382	603	555	Totals.....	106,928	104,111	71,689

Immigrants of Continental European origin comprised 68.2 p.c. of the influx during 1961 and those of British origin made up 26.4 p.c. Proportions of Continental Europeans in 1960 and 1959 were 70.5 p.c. and 71.5 p.c., respectively, and of British origin 25.4 p.c. and 23.3 p.c. in the same years.

7.—Origins of Immigrant Arrivals, 1959-61

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Origin	1959	1960	1961	Origin	1959	1960	1961
No.	No.	No.	No.	No.	No.	No.	No.
British—				Continental European—			
English.....	15,034	15,601	11,218	concluded			
Irish.....	3,834	4,012	3,132	Scandinavian—			
Scottish.....	5,526	6,130	4,157	Danish.....	1,501	1,207	598
Welsh.....	563	692	456	Icelandic.....	30	14	7
Totals, British.....	24,957	26,435	18,963	Norwegian.....	517	551	419
				Swedish.....	484	489	344
Continental European—				Spanish ¹	509	850	844
Albanian.....	21	33	45	Swiss ²	679	811	653
Austrian.....	784	1,001	641	Ukrainian.....	346	349	165
Belgian.....	844	776	733	Yugoslavia ¹	2,360	3,572	2,323
Bulgarian.....	52	47	30				
Czech and Slovak.....	207	220	169	Totals, Continental European.....	76,401	73,351	48,868
Estonian.....	103	143	63				
Finnish.....	944	1,047	281	Other—			
French.....	2,622	2,940	2,479	Arabian.....	62	84	65
German.....	12,481	12,430	8,023	Armenian.....	242	164	186
Greek.....	5,035	5,092	3,941	Chinese.....	2,586	1,402	894
Hungarian.....	1,101	1,279	783	East Indian.....	741	691	772
Italian.....	27,223	21,690	15,088	Indian (American).....	30	25	40
Jewish.....	3,395	2,964	2,043	Japanese.....	197	169	126
Latvian.....	140	161	122	Lebanese.....	288	242	215
Lithuanian.....	110	104	114	Mexican.....	23	45	29
Luxemburger.....	12	13	10	Negro.....	1,104	1,135	1,131
Maltese.....	424	485	208	Syrian.....	59	28	47
Netherlander.....	5,684	5,983	2,293	Turkish.....	86	133	139
Polish.....	3,960	3,401	2,985	Unspecified.....	152	207	214
Portuguese.....	4,372	5,277	2,999				
Romanian.....	169	189	156	Totals, Other.....	5,570	4,325	3,858
Russian.....	202	232	209	Grand Totals.....	106,928	104,111	71,689

¹ Includes a few minor groups, such as German, French, Italian, etc.

² Reported as Swiss origin but evidently one of the constituent races

Destinations and Occupations.—Upon arrival in Canada, immigrants are asked to state their intended destination. According to these records, Ontario absorbed by far the highest proportion of arrivals in the four-year period 1958-61—51.0 p.c. of all the males and 52.3 p.c. of all the females. Quebec was the second most important province of destination, receiving 23.4 p.c. of the males and 22.7 p.c. of the females. The proportions intending to settle in British Columbia were 9.9 p.c. and 10.6 p.c., respectively; in the Prairie Provinces 13.0 p.c. and 11.9 p.c., respectively; and in the Atlantic Provinces 2.5 p.c. and 2.3 p.c., respectively. The provincial distribution has changed little from year to year throughout the whole postwar period.

8.—Intended Destinations of Male and Female Immigrants Admitted to Canada, 1958-61

Province or Territory	1958			1959		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Newfoundland.....	190	183	373	175	170	345
Prince Edward Island.....	38	40	78	47	44	91
Nova Scotia.....	933	852	1,786	523	564	1,087
New Brunswick.....	547	484	1,031	307	333	640
Quebec.....	13,994	14,449	28,443	12,253	12,563	24,816
Ontario.....	30,542	33,311	63,853	26,657	29,319	55,976
Manitoba.....	2,566	2,166	4,732	1,839	1,771	3,610
Saskatchewan.....	1,343	1,252	2,595	877	938	1,815
Alberta.....	4,180	4,249	8,429	3,554	3,869	7,423
British Columbia.....	6,235	7,165	13,400	5,177	5,823	11,000
Yukon and Northwest Territories...	62	69	131	67	58	125
Canada.....	60,630	64,221	124,851	51,476	55,452	106,928
	1960			1961		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Newfoundland.....	137	169	306	184	181	365
Prince Edward Island.....	38	45	83	37	32	69
Nova Scotia.....	598	612	1,210	428	473	901
New Brunswick.....	317	317	634	415	355	770
Quebec.....	11,794	11,980	23,774	7,675	9,245	16,920
Ontario.....	26,396	28,095	54,491	16,008	20,510	36,518
Manitoba.....	2,338	1,999	4,337	1,216	1,311	2,527
Saskatchewan.....	1,127	960	2,087	596	737	1,333
Alberta.....	3,454	3,495	6,949	2,260	2,563	4,823
British Columbia.....	4,765	5,355	10,120	3,226	4,100	7,326
Yukon and Northwest Territories...	54	66	120	61	76	137
Canada.....	51,018	53,093	104,111	32,106	39,583	71,689

In like manner, immigrant arrivals are asked to record the occupations which they intend to follow in Canada. Approximately 48.5 p.c. of the persons admitted in 1961 declared that they would enter the labour force. The other 51.5 p.c. were wives, children and other dependants or were retired persons. Of the male workers, 21.9 p.c. were classed as professional and managerial, 10.5 p.c. were in agricultural occupations, 5.6 p.c. in service occupations, 32.4 p.c. in manufacturing, mechanical and construction trades, and 17.5 p.c. were general labourers. About 41 p.c. of the female immigrants entering the labour force were intending to follow service occupations. Details are given in Table 9.

9.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1958-61

Intended Occupation	1958			1959			1960			1961		
	Males		Females	Males		Females	Males		Females	Males		Females
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Managerial (owners, managers, officials).....	916	28	944	800	37	837	793	32	825	859	37	896
Professional.....	4,784	2,769	7,553	4,270	2,677	6,947	4,569	2,867	7,436	3,922	2,774	6,696
Accountants and auditors.....	289	14	303	244	13	257	270	13	283	197	18	215
Architects.....	123	5	128	98	9	107	74	4	78	29	2	31
Chemists (other than pharmacists).....	164	21	185	167	13	180	148	9	157	112	10	122
Dentists.....	15	3	18	42	6	48	25	4	29	30	6	36
Draughtsmen and designers.....	490	48	538	349	29	378	446	34	480	338	34	370
Aeronautical engineers.....	62	—	62	23	—	23	36	—	36	17	—	17
Chemical engineers.....	70	—	70	56	—	56	62	—	62	44	—	44
Civil engineers (and other professional engineers, <i>n.e.s.</i>).....	316	—	316	258	—	258	224	—	224	177	—	177
Forestry engineers.....	10	—	10	6	—	6	6	—	6	1	—	1
Electrical engineers.....	255	—	255	198	—	198	165	—	165	141	—	141
Mechanical engineers.....	232	—	232	181	—	181	196	—	196	125	—	125
Metallurgical engineers.....	8	—	8	12	—	12	6	—	6	5	—	5
Mining engineers.....	57	—	57	49	—	49	30	—	30	37	—	37
Laboratory technicians and assistants, <i>n.e.s.</i>	202	142	344	184	126	310	250	113	363	189	152	341
Graduate nurses.....	1	1,144	1,145	—	1,072	1,073	—	1,290	1,290	—	1,108	1,108
Physicians and surgeons.....	340	54	394	381	658	1,039	380	52	431	353	92	445
Teachers and professors.....	584	716	1,300	597	653	1,250	704	692	1,396	832	648	1,480
Other professional workers.....	1,566	622	2,188	1,425	697	2,122	1,538	656	2,194	1,297	704	2,001
Clerical.....	1,888	4,857	6,745	1,582	3,827	5,459	1,747	4,113	5,860	1,059	3,473	4,232
Stenographers and typists.....	36	3,000	3,036	30	2,298	2,329	30	2,537	2,567	2,122	2,122	2,146
Other clerical workers.....	1,852	1,857	3,709	1,552	1,578	3,130	1,717	1,576	3,293	1,035	1,051	2,086
Transportation.....	897	5	902	756	4	760	904	9	913	412	1	413
Air pilots, captains and mates, railway conductors, locomotive engineers, etc.....	175	—	175	106	—	106	111	—	111	71	—	71
Other transportation workers.....	722	5	727	650	4	654	793	9	802	341	1	342
Communication.....	150	177	327	97	142	239	169	141	310	87	74	161
Commercial.....	1,382	684	2,066	1,365	588	1,953	1,330	678	2,008	772	392	1,164
Commercial travellers and salesmen.....	886	20	906	853	21	874	925	19	944	580	21	601
Sales clerks.....	232	603	835	228	524	750	170	616	786	67	340	407
Other trading workers.....	284	61	345	286	43	329	235	43	278	125	31	156
Financial.....	158	5	163	148	6	154	140	4	144	72	5	77
Service.....	2,090	9,411	11,501	1,707	8,033	9,740	1,632	7,111	8,763	1,234	5,223	6,557
Barbers, hairdressers and manicurists.....	377	344	721	344	283	627	345	330	675	376	255	631

9.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1958-61—concluded

Intended Occupation	1958			1959			1960			1961		
	Males		Total	Males		Total	Males		Total	Males		Total
	No.	No.		No.	No.		No.	No.		No.	No.	
Service—concluded												
Nurses aides.....	71	681	752	79	644	723	78	549	627	78	495	573
Cooks.....	308	113	421	273	91	364	307	84	391	229	57	286
Domestic servants.....	62	7,816	7,878	52	6,662	6,714	26	5,767	5,793	33	4,285	4,318
Other non-professional service workers.....	1,272	457	1,729	959	352	1,312	896	381	1,277	518	231	749
Agricultural												
Farmers and agriculturists.....	4,992	79	5,071	4,867	98	4,965	5,241	80	5,321	2,299	42	2,341
Farm labourers.....	157	—	157	126	—	126	105	—	105	148	—	148
Farm labourers.....	4,835	79	4,914	4,741	98	4,839	5,136	80	5,216	2,151	42	2,193
Fishing, Trapping and Logging												
Fishermen.....	169	—	169	123	—	123	188	—	188	65	—	65
Trappers.....	—	—	—	21	—	21	32	—	32	13	—	13
Bushmen and lumbermen.....	—	—	—	1	—	1	—	—	—	1	—	1
Trappers.....	148	—	148	101	—	101	156	—	156	51	—	51
Mining												
Miners.....	344	—	344	248	—	248	479	—	479	90	—	90
Miners.....	291	—	291	214	—	214	440	—	440	69	—	69
Oil field workers.....	23	—	23	19	—	19	14	—	14	9	—	9
Other workers in mines and quarries.....	30	—	30	15	—	15	25	—	25	12	—	12
Manufacturing, Mechanical and Construction												
Aircraft mechanics and repairmen.....	16,022	1,454	17,476	11,459	1,333	12,792	12,317	1,234	13,551	7,082	994	8,076
Automobile mechanics and repairmen.....	102	—	102	64	—	64	67	—	67	32	—	32
Bakers.....	481	—	481	351	—	351	400	—	400	573	—	573
Blacksmiths, hammermen and forgers.....	158	—	158	112	—	112	102	—	102	242	—	242
Boilermakers and platers.....	32	—	32	18	—	18	29	—	29	57	—	57
Brick and stone masons.....	1,385	—	1,385	1,124	—	1,124	942	—	942	61	—	61
Butchers and meat cutters.....	419	3	422	284	1	285	356	3	359	583	—	583
Butcher and cheese makers.....	16	—	16	3	—	3	4	—	4	206	—	206
Cabinet and furniture makers.....	515	—	515	266	—	266	292	—	292	3	—	3
Carpenters.....	1,638	—	1,638	1,224	—	1,224	1,246	—	1,246	202	—	202
Compositors and typesetters.....	108	—	108	82	—	82	77	—	77	634	—	634
Construction machinery operators.....	107	—	107	65	—	65	82	—	82	77	—	77
Cornmakers.....	3	1	4	5	—	5	5	—	5	40	—	40
Dressmakers and seamstresses.....	21	745	766	13	774	787	17	659	676	—	682	687
Electricians and wiremen.....	952	—	952	697	—	697	737	—	737	426	—	426
Electroplaters.....	14	—	14	15	—	15	22	—	22	21	—	21
Furriers.....	70	12	82	57	12	69	70	9	85	47	8	55
Glove makers.....	5	—	5	1	—	1	3	—	3	1	—	1
Jewellers and watchmakers.....	133	7	140	104	—	104	102	2	104	53	3	56
Leather cutters.....	6	—	6	1	—	1	—	—	—	—	—	—
Machine operators.....	426	15	441	270	10	280	343	13	356	237	17	254
Machinists.....	493	—	493	432	—	432	338	—	338	230	—	230
Mechanics and repairmen.....	1,205	—	1,205	909	—	909	1,059	—	1,059	512	—	512
Metal fitters and assemblers.....	881	12	893	399	3	402	509	9	518	209	4	213

Milliners.....	1	21	22	—	8	8	3	14	17	2	5
Millwrights.....	19	—	19	10	—	10	—	—	12	6	6
Moulders.....	107	—	64	64	—	64	—	—	75	48	75
Painters, decorators and glaziers.....	747	—	575	575	—	575	622	—	622	388	388
Patternmakers.....	28	—	16	16	—	16	15	—	15	16	16
Photoengravers and lithographers.....	26	—	14	14	—	14	11	—	11	9	9
Plasterers and lathers.....	112	—	85	85	—	85	86	—	86	51	51
Plumbers and pipe fitters.....	425	—	337	337	—	337	—	—	331	192	192
Printers and pressmen and plate printers.....	104	—	85	85	—	85	63	—	63	33	33
Radio repairmen.....	194	—	126	126	4	130	150	2	152	85	85
Saxvays (wood).....	19	1	16	16	—	16	7	—	7	12	12
Sheet metal workers and tinsmiths.....	159	3	102	102	—	102	102	—	102	47	47
Shoemakers and shoe repairs.....	374	—	243	243	—	243	254	—	254	173	173
Stimners and weavers.....	38	19	23	23	20	43	40	16	45	20	20
Stationary engineers.....	96	—	85	85	—	85	64	—	64	29	29
Stonemasons and dressers.....	7	—	8	8	—	8	11	—	11	3	3
Tailors.....	493	80	409	409	82	491	455	42	468	307	307
Tanners.....	20	—	4	4	—	4	8	—	8	8	8
Toolmakers, diemakers and setters.....	304	1	190	190	—	190	234	—	234	115	115
Unpolishers.....	94	4	87	87	4	91	97	1	98	58	58
Welders and flame cutters.....	563	2	290	290	—	290	366	3	369	243	243
Other workers in food products.....	105	10	69	69	10	79	100	13	103	44	44
Other workers in rubber products.....	23	—	21	21	1	22	22	1	22	13	13
Other workers in leather and leather products.....	44	4	19	19	5	24	26	2	28	16	16
Other workers in textiles.....	58	40	93	70	21	91	73	26	99	40	40
Other workers in clothing and textile goods.....	56	194	250	43	155	198	65	192	257	38	108
Other workers in wood products.....	128	2	130	89	104	93	87	2	89	39	—
Workers in pulp, paper and paper products.....	12	2	14	16	1	17	26	2	28	10	2
Other workers in printing and publishing.....	72	29	101	38	19	57	40	32	81	23	38
Other metal workers.....	219	3	222	224	3	227	263	1	264	116	5
Other workers in non-metallic mineral products.....	128	4	132	85	3	88	85	3	88	58	5
Other manufacturing and mechanical workers.....	809	213	1,022	616	171	787	586	167	783	292	81
Other construction workers.....	301	—	301	230	—	230	188	—	188	71	—
Labourers (other than agricultural, fishing, logging and mining).....	9,306	82	9,388	8,845	125	8,940	7,361	121	7,482	3,827	155
Not Stated.....	299	130	429	268	17,046	53,551	219	74	293	48	11
Totals, Workers.....	43,237	19,651	63,078	36,505	17,046	53,551	37,109	16,464	53,573	21,828	12,981
Dependents—	—	24,705	24,705	—	21,223	21,223	—	20,654	20,654	—	15,882
Wives.....	15,832	14,612	30,444	13,581	12,582	26,133	12,656	11,970	24,028	8,084	17,316
Children.....	1,401	6,183	6,584	1,380	4,631	6,021	1,258	4,005	5,268	1,294	3,685
Totals, Immigrants.....	60,630	64,221	121,851	51,476	55,432	106,928	51,048	53,093	101,111	32,106	71,689

Deportations.—Deportations by cause and nationality are shown in Table 10 for the years 1952-61. Persons who have not yet acquired domicile (five years residence in Canada) may be deported if they fall into prohibited classes at time of entry or within five years of entry, if they have engaged in commercialized vice, have been convicted under the Criminal Code or have become inmates of prisons or mental institutions, or have gained entry by fraudulent means. The causes that may lead to deportation are narrowed after a person has acquired domicile. A person not a citizen may be deported regardless of length of residence if he is found to be a member of a subversive organization or engages in subversive activities, or if he has been convicted of an offence involving disloyalty to the Queen, or if he has, outside of Canada, engaged in activities detrimental to the security of Canada. A Canadian citizen cannot be deported.

10.—Deportations,¹ by Cause and Nationality, 1952-61

NOTE.—Figures from 1903 are given in the corresponding table of previous Year Books.

Cause and Nationality	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Cause	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Mental and physical.....	54	85	74	125	91	55	81	107	66	40
Public charges.....	23	14	2	23	21	13	7	10	15	18
Criminality.....	102	121	210	192	164	145	170	232	200	223
Misrepresentation and stealth.....	330	309	249	282	249	262	338	317	236	252
Other causes.....	70	66	118	81	79	34	68	85	54	59
Totals, Deportations.....	579	595	653	703	604	509	664	751	571	592
Nationality										
British.....	214	237	249	227	212	155	155	204	125	127
United States.....	82	92	88	124	123	98	132	175	117	164
Other.....	283	266	316	352	269	256	377	372	329	301

¹ Includes deserting seamen deported.

Returning Canadians.—The numbers of Canadians returning to Canada during each of the ten years 1952-61 after having resided in the United States were:—

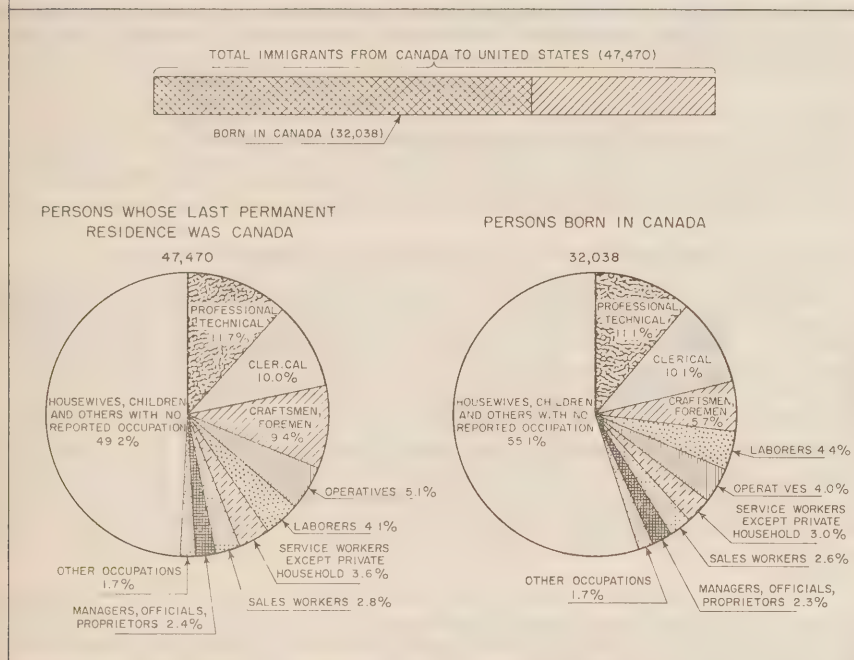
Year	No.	Year	No.
1952.....	4,707	1957.....	5,426
1953.....	4,606	1958.....	5,297
1954.....	4,516	1959.....	5,243
1955.....	3,942	1960.....	5,233
1956.....	4,740	1961.....	6,250

Section 3.—Emigration Statistics

Emigration from Canada is an important factor tending to offset to some extent present and past immigration activities. The major outward movement has always, of course, been to the United States and that movement, both of native-born Canadians and of Europeans who originally migrated to Canada, has attained considerable proportions at certain periods. No Canadian statistics on emigration are available but Table 11 gives figures taken from the annual reports of the Immigration and Naturalization Service of the United States Department of Justice. These figures show the numbers of persons entering the United States from Canada during the years ended June 30, 1952-61 with the expressed intention of establishing permanent residence in that country. They do not include persons travelling for pleasure, even for extended periods of time, holders of border-crossing cards (normally issued to persons living in border areas of Canada but working in the United States) or casual tourist crossings in these same areas.

OCCUPATIONAL DISTRIBUTION OF PERSONS MIGRATING FROM CANADA TO UNITED STATES FOR THE YEAR ENDED JUNE 30, 1961

(SOURCE: U.S. ANNUAL REPORT OF THE IMMIGRATION AND NATURALIZATION SERVICE)



Of the 47,470 persons entering the United States from Canada in the year ended June 30, 1961, 32,038 were native-born Canadians—15,371 males and 16,667 females. Slightly more than one-quarter, or 8,402, of the total native-born emigrants were males in the productive age group, 20-59 years. By occupation, the largest group of the total of 32,038 native-born persons was the professional or technical group which numbered 3,541; clerical or kindred workers numbered 3,242, and 1,842 were classed as craftsmen or foremen. On the other hand, 17,658 persons, or 55.1 p.c. of the total, were classed as housewives, children and others with no reported occupation. Altogether, 41.4 p.c. of the total were children under 20 years of age.

11.—Persons Entering the United States from Canada, Years Ended June 30, 1952-61

NOTE.—Includes only persons who have declared their intention of remaining permanently in the United States when applying for a visa (see text above). SOURCE: Immigration and Naturalization Service, United States Department of Justice.

Year	Canadian-Born	Total from Canada	Year	Canadian-Born	Total from Canada
	No.	No.		No.	No.
1952.....	28,141	33,354	1957.....	33,203	46,354
1953.....	28,967	26,283	1958.....	30,055	45,143
1954.....	27,055	34,873	1959.....	23,082	34,599
1955.....	23,091	32,435	1960.....	30,990	46,668
1956.....	29,533	42,363	1961.....	32,038	47,470

Of the 47,470 persons entering the United States from Canada claiming Canada as country of last permanent residence—which of course includes native-born persons and those born in other countries who have resided in Canada—the Immigration and Naturalization Service, United States Department of Justice, lists 5,562 as professional, technical and kindred workers, 4,744 as clerical and kindred workers and 4,487 as craftsmen, foremen and kindred workers. Housewives, children and others with no reported occupation accounted for 23,338, or 49.2 p.c. of the total.

PART II.—CANADIAN CITIZENSHIP*

Naturalization procedures and events leading to the passing of the Canadian Citizenship Act are given in the 1951 Year Book, pp. 153-155.

Section 1.—The Canadian Citizenship Act

The Canadian Citizenship Act came into force on Jan. 1, 1947, its purpose being to give a clear definition of Canadian citizenship and provide an underlying community of status for all the people of Canada. Since Jan. 18, 1950, the administration of Canadian citizenship has been the responsibility of the Department of Citizenship and Immigration. The provisions of the Act and its several amendments are outlined in some detail in the 1955 Year Book, pp. 177-181. More briefly, they are given in the following paragraphs.

Natural-Born Canadian Citizens, Born before Jan. 1, 1947.—The Act conferred natural-born status upon two categories of persons in being on Jan. 1, 1947. These were (1) those born in Canada or on a Canadian ship or aircraft and who were not aliens on Jan. 1, 1947; and (2) those born outside of Canada who were not aliens on Jan. 1, 1947 and who were entitled to claim derivative citizenship in accordance with the provisions of the Act.

The Act provides that a person in the second category who was a minor on Jan. 1, 1947 will automatically cease to be a Canadian citizen on his 24th birthday or on Jan. 1, 1954, whichever is the later date, unless he has his place of domicile in Canada at such date or has, before such date and after reaching the age of 21 years, filed a declaration of retention of Canadian citizenship.

Natural-Born Canadian Citizens, Born after Dec. 31, 1946.—A person born outside of Canada subsequent to that date, whose responsible parent is considered a Canadian citizen pursuant to the terms of the Canadian Citizenship Act, is a Canadian if his birth is registered with the Registrar of Canadian Citizenship within two years of its occurrence or within such extended period as the Minister may authorize in special cases.

A person who becomes a natural-born Canadian citizen in such a manner will automatically cease to be a Canadian citizen if he fails to file a declaration of retention prior to his 24th birthday or does not have his place of domicile in Canada upon that date.

Canadian Citizens other than Natural-Born.—Before the 1953 amendments to the Citizenship Act, the only persons who acquired Canadian citizenship on Jan. 1, 1947 through the transitional clauses of Sect. 9 were persons who were naturalized in Canada before that date, British subjects who had Canadian domicile at the commencement of the Act and women lawfully admitted to Canada and married prior to Jan. 1, 1947 whose husbands would have qualified as Canadian citizens if the Act had come into force before the date of marriage. Sect. 9 was amended on June 1, 1953, so that a British subject who had his place of domicile in Canada for at least 20 years immediately before Jan. 1, 1947 need not comply with the requirements of Canadian domicile provided he was not under an order of deportation on Jan. 1, 1947.

* Prepared in the Citizenship Registration Branch under the direction of the Deputy Minister, Department of Citizenship and Immigration, Ottawa.

Acquisition of Canadian Citizenship by Aliens and British Subjects.—The Act provides a means of acquiring Canadian citizenship. An alien who wishes to become a Canadian citizen must apply through his local court or through one of the special citizenship courts now being established. He must appear before the judge for a hearing and will in due course be granted citizenship if his application is approved by the judge and by the Minister. A British subject may apply for citizenship directly to the Minister. It should be added that a minor child does not automatically acquire Canadian citizenship upon the grant of citizenship to the responsible parent.

Status of Married Women.—The Canadian Citizenship Act places no disabilities upon the married woman. She neither acquires nor does she lose Canadian citizenship by marriage. In order to acquire Canadian citizenship she must apply in exactly the same manner as does a man. There is, however, one advantage granted to her—if she is married to a Canadian citizen she may apply for citizenship after a residence of only one year in Canada.

The Canadian Citizenship Act also enables a woman married to an alien whose nationality she acquired upon marriage to divest herself of Canadian citizenship by the filing of a declaration of renunciation. Finally, it provides a means whereby a woman, who had become an alien through marriage prior to Jan. 1, 1947, may acquire the Canadian status she would otherwise have assumed on that date.

Status of Minor Children.—The minor child of a Canadian citizen other than a natural-born Canadian may receive a certificate of Canadian citizenship upon application therefor by his or her responsible parent, *de facto* guardian, or mother if she has custody of the child. Provision is also made in the Citizenship Act for the granting of a certificate of citizenship to a minor child in special circumstances. Provision is made for the granting of a certificate to a person who has been adopted or legitimated in Canada and who has been admitted to Canada for permanent residence, if the adopter or the legally recognized father is a Canadian citizen.

Loss of Canadian Citizenship.—Canadian citizenship may be lost in the following manner:—

- (1) A Canadian citizen who when outside of Canada and not under disability acquires by a voluntary and formal act other than marriage the nationality or citizenship of a country other than Canada. This does not apply if the country is at war with Canada at the time of acquisition but in such a case the Minister may order that he cease to be a Canadian citizen. The purpose of this is to hold the person, if deemed necessary, to his obligations as a Canadian.
- (2) A natural-born Canadian citizen who is a dual national by birth or through naturalization, and any Canadian citizen on marriage, may after attaining the age of 21 cease to be a Canadian citizen through the making of a declaration of renunciation thereof.
- (3) A Canadian citizen who under the law of another country is a national or citizen of such country and who serves in the armed forces of such country when it is at war with Canada. This does not apply if the Canadian citizen became a national or citizen of such country when it was at war with Canada.
- (4) An other-than-natural-born Canadian citizen, unless he served outside Canada in the Armed Forces of Canada in time of war or other related circumstances, or unless otherwise exempt, loses his citizenship automatically if he has resided outside of Canada for ten consecutive years. The period of absence may however be extended upon request, if the application is filed and granted before loss occurs and if good and sufficient reason exists.

Loss of Citizenship by Revocation—Applicable Only to Naturalized Persons.—The citizenship of a Canadian citizen other than a natural-born Canadian citizen may be revoked by the Governor in Council if, upon a report from the Minister, he is satisfied that such Canadian citizen, having been charged with the offence of treason under the Criminal Code or with an offence under the Official Secrets Act, has failed or refused to return to Canada voluntarily within such time as may be prescribed in a notice sent by the Minister to such person at his last known address and has not appeared at the preliminary inquiry into such offence or at the trial of such offence, or both as the case may be; or has obtained a certificate of naturalization or of Canadian citizenship by false representation or fraud or by concealment of material circumstances.

Doubt as to Loss of Citizenship.—Where in the opinion of the Minister a doubt exists as to whether a person has ceased to be a Canadian citizen, the Minister may refer the question to the Commission referred to in Subsection (4) of Section 19 for a ruling and the decision of the Commission or the Court, as the case may be, shall be final.

Loss of Citizenship by Revocation—Applicable to Both Natural-Born and Naturalized Persons.—The Governor in Council may in his discretion order that any person shall cease to be a Canadian citizen if, upon a report from the Minister of Citizenship and Immigration, he is satisfied that such person has, when not under a disability (1) acquired voluntarily, when in Canada, the citizenship of a foreign country (other than by marriage), (2) taken or made an oath, affirmation, or other declaration of allegiance to a foreign country, or (3) made a declaration renouncing his Canadian citizenship.

Section 2.—Canadian Citizenship Statistics

Data on countries of allegiance and origins of the population were collected at the 1961 Census and a table giving summary figures will be found in Appendix II of this volume. Results of the 1951 Census, the latest information available on the subject at the time of the preparation of this Chapter, showed that in 1951 96.9 p.c. of the people of Canada were Canadian citizens; that 0.7 p.c. were citizens of other Commonwealth countries; 1.7 p.c. of European countries; 0.1 p.c. of Asiatic countries; 0.5 p.c. of the United States; and 0.1 p.c. of other countries.

The following statistics show the number of citizenship certificates "issued" and more detailed information on certificates "granted" in recent years. The former, in Table 1, include both certificates granted to new citizens and those issued for various reasons to persons who are already Canadian citizens. Tables 2 to 6 refer only to "grants" which means that the holder became a Canadian citizen by the grant of such certificate.

Citizenship Certificates Issued.—In 1960, 104,406 Canadian citizenship certificates were issued as compared with 115,247 in 1959. During 1960 the Canadian Citizenship Registration Branch recorded 4,904 certificates of registration of births abroad, 422 declarations of intention, 121 declarations of retention of Canadian citizenship and 30 petitions for resumption of Canadian citizenship. Certificates issued free to persons who had had active military service numbered 585, the same as in 1959. Corresponding figures for 1959 were 5,037 registrations of births abroad, 507 declarations of intention, 80 declarations of retention, 15 petitions for resumption and 585 certificates issued free to persons who had had active military service.

1.—Citizenship Certificates Issued, by Status of Recipient, 1958-60

Section of 1947 Act	Classification	1958	1959	1960
		No.	No.	No.
Sect. 34 (1) (i)	Certificates of Proof of Status—			
	Canadian citizens by birth.....	1,318	1,196	1,175
	By naturalization under former Acts.....	3,118	2,194	1,833
	British subjects with 5 years domicile before Jan. 1, 1947.....	1,527	1,101	1,132
	Women, through marriage.....	673	552	465
Sect. 10 (2)	British subjects with 5 years domicile after Jan. 1, 1947.....	8,501	7,793	7,567
Sect. 10 (1)	Aliens.....	58,905	49,061	40,599
Sect. 10 (5)	Minors whose parents have been granted Certificates.....	15,716	13,437	13,562
Sect. 11 (3)	Minors under special circumstances.....	165	195	188
Sect. 10 (3)	Women who regained lost Canadian citizenship through marriage.....	432	309	190
Sect. 10 (4)	Canadians who regained lost status by naturalization outside Canada.....	152	110	120
Sect. 11 (1)	Doubtful cases who now have been awarded Certificates.....	5	12	5
Sect. 11 (2)	Adopted and legitimated persons.....	312	363	149
	Replacement Certificates.....	1,563	1,529	1,510
	Miniature certificates of citizenship (issued since Oct. 18, 1955, to Canadian citizens).....	41,173	37,395	35,911
	Totals.....	133,560	115,247	104,406

Characteristics of Persons Granted Citizenship Certificates in 1960.—Comparable detailed statistics showing the characteristics of persons granted citizenship certificates are available since 1953; such characteristics include age, marital status, occupation, period of immigration, residence and previous nationality.

Of the 62,378 persons granted citizenship in 1960, about 1 p.c. had migrated to Canada before 1921, 3 p.c. in the period 1921-40, 13 p.c. in the period 1941-50 and 83 p.c. since 1950. Regionally, these new citizens were distributed as follows: 1 p.c. in the Atlantic Provinces, 16 p.c. in Quebec, 57 p.c. in Ontario, 15 p.c. in the Prairie Provinces and 11 p.c. in British Columbia. Just under 83 p.c. of them resided in urban centres.

Almost 17 p.c. of the persons naturalized during 1960 had been citizens of Germany, 17 p.c. had been citizens of Italy, 13 p.c. had owed allegiance to a British Commonwealth country, 14 p.c. had been citizens of the Netherlands, 4 p.c. reported former allegiance to countries now parts of the U.S.S.R., and Poland was the country of allegiance for 6 p.c. Most of the persons designated as "stateless" were born in Poland, the U.S.S.R., Yugoslavia, Hungary, Germany, Czechoslovakia and Austria.

Of the males granted citizenship certificates in 1960, 22 p.c. were reported in manufacturing and mechanical occupations, 12 p.c. were employed in construction, 10 p.c. were labourers in other than primary industries, 7 p.c. were in professional occupations, 7 p.c. were in service, 5 p.c. in agriculture, 4 p.c. in transportation and communications and 4 p.c. in proprietary and managerial occupations. Of the females granted certificates, 51 p.c. were homemakers; among those employed outside the home, 30 p.c. were in clerical occupations, 26 p.c. were in manufacturing and mechanical occupations and 24 p.c. in service occupations.

2.—Persons Granted Citizenship Certificates in 1960, by Province of Residence, Rural and Urban, and Period of Immigration to Canada

Residence	Period of Immigration					Born in Canada ¹	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960		
	No.	No.	No.	No.	No.	No.	No.
Rural							
Residing in Canada.....	153	408	154	1,876	8,158	20	10,769
Newfoundland.....	1	1	—	2	37	—	41
Prince Edward Island.....	1	—	—	4	20	—	25
Nova Scotia.....	2	4	3	32	116	1	158
New Brunswick.....	1	—	—	17	82	—	100
Quebec.....	8	25	1	91	680	—	805
Ontario.....	23	100	52	1,119	4,834	2	6,130
Manitoba.....	21	44	19	62	191	1	338
Saskatchewan.....	26	69	23	95	237	6	456
Alberta.....	50	109	33	158	671	5	1,026
British Columbia.....	20	55	21	288	1,219	5	1,608
Yukon and N.W.T.....	—	1	2	8	71	—	82
Urban							
Residing in Canada.....	441	878	282	6,498	43,314	67	51,480
Newfoundland.....	—	1	—	8	48	—	57
Prince Edward Island.....	—	—	—	3	7	1	11
Nova Scotia.....	5	9	6	53	179	1	253
New Brunswick.....	3	2	—	19	63	1	88
Quebec.....	80	169	37	860	7,964	21	9,131
Ontario.....	119	360	112	3,606	25,406	20	29,623
Manitoba.....	33	62	23	405	1,619	6	2,148
Saskatchewan.....	34	39	12	128	647	2	860
Alberta.....	75	133	47	597	3,479	8	4,339
British Columbia.....	92	101	45	813	3,838	7	4,896
Yukon and N.W.T.....	—	2	—	8	64	—	74

¹ Canadian-born persons who lost their citizenship by marriage; this applies to females only.

2.—Persons Granted Citizenship Certificates in 1960, by Province of Residence, Rural and Urban, and Period of Immigration to Canada—concluded

Residence	Period of Immigration					Born in Canada ¹	Total
	Before 1921	1921-1930	1931-1940	1941-1950	1951-1960		
Rural and Urban	No.	No.	No.	No.	No.	No.	No.
Residing in Canada.....	594	1,286	436	8,374	51,472	87	62,249
Newfoundland.....	1	2	—	10	85	—	98
Prince Edward Island.....	1	—	—	7	27	1	36
Nova Scotia.....	7	13	9	85	295	2	411
New Brunswick.....	4	2	—	36	145	1	188
Quebec.....	88	194	38	951	8,644	21	9,936
Ontario.....	142	460	164	4,725	30,240	22	35,753
Manitoba.....	54	106	42	467	1,810	7	2,486
Saskatchewan.....	60	108	35	221	884	8	1,316
Alberta.....	125	242	80	755	4,150	13	5,365
British Columbia.....	112	156	66	1,101	5,057	12	6,504
Yukon and N.W.T.....	—	3	2	16	135	—	156
Residing Outside Canada.....	—	—	—	12	105	12	129
Totals, Naturalized.....	594	1,286	436	8,386	51,577	99	62,378

¹ Canadian-born persons who lost their citizenship by marriage; this applies to females only.

3.—Persons Granted Citizenship Certificates in 1959 and 1960, by Age Group and Sex

Age Group	1959			1960		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
0 - 4 years.....	58	44	102	54	46	100
5 - 9 ".....	1,688	1,513	3,201	1,445	1,245	2,690
10 - 14 ".....	3,052	2,686	5,738	3,122	2,837	5,959
15 - 19 ".....	2,297	1,986	4,283	2,397	2,088	4,485
20 - 24 ".....	3,621	2,648	6,269	3,188	2,393	5,581
25 - 29 ".....	6,468	3,964	10,432	5,315	3,469	8,784
30 - 34 ".....	7,018	4,947	11,965	6,013	4,150	10,163
35 - 39 ".....	5,792	4,349	10,141	4,746	3,596	8,342
40 - 44 ".....	3,324	2,289	5,613	2,799	2,094	4,893
45 - 49 ".....	2,928	2,107	5,035	2,451	1,720	4,171
50 - 54 ".....	1,853	1,688	3,541	1,539	1,300	2,839
55 - 59 ".....	1,180	1,100	2,280	976	968	1,944
60 - 64 ".....	738	651	1,389	627	610	1,237
65 - 69 ".....	428	389	817	351	349	700
70 - 74 ".....	176	139	315	152	164	316
75 + ".....	78	81	159	77	97	174
Totals, All Ages.....	40,699	30,581	71,280	35,252	27,126	62,378

4.—Persons Granted Citizenship Certificates in 1959 and 1960, by Occupation and Sex

Occupation	1959			1960		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Proprietary and managerial.....	1,593	160	1,753	1,323	135	1,458
Professional.....	3,163	796	3,959	2,612	744	3,356
Clerical.....	1,315	2,363	3,678	1,333	2,206	3,539
Transportation and communication.....	1,536	85	1,621	1,292	69	1,361
Commercial and financial.....	1,321	442	1,763	1,140	419	1,559
Service.....	3,188	2,090	5,278	2,333	1,822	4,155
Agricultural.....	2,099	55	2,154	1,680	50	1,730
Fishing, trapping, logging.....	287	—	287	229	—	229
Mining.....	612	—	612	497	—	497
Manufacturing and mechanical.....	8,750	2,290	11,040	7,876	1,951	9,827
Construction.....	5,393	7	5,400	4,273	5	4,278
Labourers, not in primary industries.....	4,069	20	4,089	3,498	9	3,498
Homemakers.....	—	16,408	16,408	—	13,866	13,866
No occupation (including students, retired, etc.).	2,213	1,299	3,512	2,681	1,738	4,419
Children under 14 years of age.....	4,398	3,875	8,273	4,029	3,587	7,616
Not stated ¹	762	691	1,453	465	465	930
Totals, All Occupations.....	40,699	30,581	71,280	35,252	27,126	62,378

¹ Mainly children over 14 years of age.

5.—Persons Granted Citizenship Certificates in 1959 and 1960, by Country of Birth and Sex

Country of Birth	1959			1960		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
Albania.....	19	3	22	18	2	20
Argentina.....	19	27	46	17	22	39
Australia.....	55	84	89	66	53	119
Austria.....	1,163	924	2,087	917	863	1,780
Belgium.....	501	438	939	563	463	1,026
Brazil.....	12	12	24	11	14	25
Britain.....	3,810	3,171	6,981	3,713	3,107	6,820
British Guiana.....	52	37	89	52	50	102
Bulgaria.....	39	12	51	33	15	48
Canada.....	49	234	283	53	187	240
China.....	847	523	1,370	240	171	411
Czechoslovakia.....	619	473	1,092	492	402	894
Denmark.....	546	202	848	443	266	709
Egypt.....	49	52	101	34	33	67
Finland.....	451	425	876	331	339	670
France.....	737	409	1,146	645	386	1,031
Germany.....	6,055	5,231	11,286	5,332	4,872	10,204
Greece.....	755	513	1,268	909	541	1,450
Hong Kong.....	28	26	54	23	12	35
Hungary.....	650	545	1,195	517	541	1,058
India.....	144	89	233	133	85	218
Indonesia.....	66	49	115	63	50	113
Iraq.....	15	17	32	21	13	34
Ireland, Republic of.....	523	351	874	510	369	879
Israel.....	77	75	152	68	44	112
Italy.....	7,398	4,037	11,435	6,808	3,829	10,637
Japan.....	53	70	123	31	65	96
Lebanon.....	74	49	123	111	54	165
Luxembourg.....	6	6	12	13	12	25
Malta.....	63	24	87	75	31	106
Mexico.....	9	11	20	15	9	24
Netherlands.....	5,613	4,534	10,147	4,812	3,850	8,662
Netherlands East Indies.....	36	25	61	22	20	42
New Zealand.....	23	7	30	23	16	39
Norway.....	239	117	356	185	96	281
Pakistan.....	18	10	28	15	11	26
Poland.....	3,033	2,336	5,369	2,408	1,904	4,312
Portugal.....	144	17	161	186	39	225
Romania.....	639	569	1,208	457	435	892
South Africa.....	57	35	92	99	44	143
Spain.....	49	27	76	66	43	109
Sweden.....	133	122	255	123	68	191
Switzerland.....	345	179	524	310	162	472
Turkey.....	54	32	86	41	34	75
Union of Soviet Socialist Republics.....	3,190	2,751	5,941	2,238	1,969	4,207
United States.....	630	379	1,009	488	294	782
Venezuela.....	13	7	20	15	9	24
West Indies.....	145	126	271	144	178	322
Yugoslavia.....	1,235	972	2,207	1,146	899	2,045
Other.....	219	167	386	217	155	372
Totals, All Countries.....	40,699	30,581	71,280	35,252	27,126	62,378
Commonwealth.....	4,527	3,845	8,372	4,474	3,809	8,283
Other Asia.....	1,278	884	2,162	635	484	1,119
Other Europe.....	34,092	25,298	59,390	29,474	22,373	51,847
South America.....	58	63	121	67	79	146
United States.....	630	379	1,009	488	294	782
Other.....	114	112	226	114	87	201

6.—Persons Granted Citizenship Certificates in 1960, by Country of Former Allegiance and Period of Immigration to Canada

Country of Former Allegiance	Period of Immigration						Born in Canada	Total
	Before 1921	1921- 1930	1931- 1940	1941- 1950	1951- 1955	1956- 1960		
	No.	No.	No.	No.	No.	No.	No.	No.
Commonwealth countries..	16	28	30	2,498	6,512	327	—	9,411
Austria.....	32	28	4	59	1,524	64	5	1,716
Belgium.....	14	18	8	121	696	12	2	871
Bulgaria.....	—	5	1	6	29	—	—	41
China.....	86	9	—	15	131	105	1	347
Czechoslovakia.....	1	64	69	107	300	15	—	556
Denmark.....	2	30	—	69	586	20	2	709
Estonia.....	—	3	—	229	392	—	—	624
Finland.....	3	121	1	29	498	24	3	679
France.....	11	8	3	77	823	52	—	974
Germany.....	9	67	17	613	11,225	384	5	12,320
Greece.....	4	10	3	63	1,311	100	—	1,491
Hungary.....	—	82	22	97	555	101	2	859
Ireland, Republic of.....	—	—	—	1	4	—	—	5
Israel.....	—	—	—	10	284	34	—	328
Italy.....	27	24	11	599	8,984	1,057	21	10,723
Japan.....	15	24	11	—	10	27	3	90
Latvia.....	—	1	—	180	433	3	—	617
Lebanon.....	—	1	—	—	152	14	—	167
Lithuania.....	1	14	1	244	203	5	2	470
Netherlands.....	8	21	2	1,076	7,728	85	—	8,920
Norway.....	6	48	2	31	179	5	1	272
Poland.....	34	226	90	1,167	1,856	145	10	3,528
Portugal.....	—	—	—	1	189	36	—	226
Romania.....	9	29	7	47	318	6	2	418
Spain.....	1	1	—	5	89	9	—	105
Sweden.....	6	32	1	13	94	1	5	152
Switzerland.....	6	24	6	51	392	23	1	503
United States.....	217	143	79	147	226	105	22	939
Union of Soviet Socialist Republics.....	76	181	47	694	1,272	27	8	2,305
Yugoslavia.....	4	41	19	125	1,403	112	1	1,705
Other.....	6	3	2	12	246	35	3	307
Totals, All Countries..	594	1,286	436	8,386	48,644	2,933	99	62,378

CHAPTER V.—VITAL STATISTICS*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Vital statistics provide a record of population development—a measure of the pace of growth, marriage and fertility trends, the distribution of people in and entering the various age groups, the relative importance of each of the causes of death, and so on. The continuity of such data gives a constant guide to the planning, operation and evaluation of a variety of national activities, particularly in the fields of public health, education, community planning and various types of business enterprise.

This Chapter gives a fairly detailed coverage of the vital statistics information available, gives life tables for males and females and presents a comparison of the principal Canadian vital statistics rates with those of other countries. In making international and interprovincial comparisons of birth, death and marriage rates, it is important to note that part of the differences observed over a period of years as between countries, provinces or local areas may be caused by differences in the sex and age distribution of the populations involved. Similarly, rates for any one area may be affected by changes in such distribution.

The population data upon which vital statistics rates are computed are given in Appendix II of this volume, in DBS census bulletins, and in reports on intercensal estimates of population. Births and deaths are classified by place of residence (births according to the residence of the mother) and marriages by place of occurrence.

The history of the collection of vital statistics in Canada is covered in the 1948-49 Year Book, pp. 185-188. Detailed information is given in *Vital Statistics* (Preliminary Report) (Catalogue No. 84-201), *Vital Statistics of Canada* (Catalogue No. 84-202) and in other regular and special reports; in addition, certain unpublished data are available on request.

Section 1.—Summary of Vital Statistics

Table 1 gives a summary of the principal vital statistics of the provinces of Canada from 1941 to 1960 and Table 2 shows certain vital statistics for urban centres having at least 10,000 population at the date of the 1956 Census. Corresponding data for 1921—when the collection of national vital statistics was initiated—to 1940 are shown in previous issues of the Canada Year Book.

* Revised in the Vital Statistics Section, Health and Welfare Division, Dominion Bureau of Statistics.

1.—Summary of Principal Vital Statistics, by Province, 1941-60

NOTE.—Figures for the years 1921, when the collection of national statistics was initiated, to 1940 are given in previous editions of the Year Book.

Province and Year	Live Births		Deaths		Natural Increase ¹		Infant Mortality ²		Maternal Mortality		Marriages	
	No.	Rate ³	No.	Rate ³	No.	Rate ³	No.	Rate ⁴	No.	Rate ⁴	No.	Rate ³
Newfoundland—												
Av. 1941-45.....	9,292	29.8	3,681	11.8	5,611	18.0	852	92	39	4.2	2,967	9.5
" 1946-50.....	12,352	36.2	3,179	9.3	9,173	26.9	754	61	25	2.0	2,711	8.0
" 1951-55.....	13,101	34.1	2,926	7.6	10,175	26.5	598	46	24	1.8	2,836	7.4
1956.....	14,541	35.0	3,058	7.4	11,483	27.6	630	43	23	1.6	3,073	7.4
1957.....	15,315	36.0	3,198	7.5	12,117	28.5	604	39	20	1.3	3,041	7.1
1958.....	14,815	33.8	3,122	7.1	11,693	26.7	572	39	14	0.9	3,047	7.0
1959.....	14,826	33.0	3,179	7.1	11,647	25.9	576	39	12	0.8	2,893	6.4
1960.....	15,173	33.1	3,015	6.6	12,158	26.5	545	36	16	1.1	3,104	6.8
P. E. Island—												
Av. 1941-45.....	2,180	23.7	964	10.5	1,216	13.2	114	52	9	3.9	686	7.5
" 1946-50.....	2,869	30.5	922	9.8	1,947	20.7	114	40	4	1.3	677	7.2
" 1951-55.....	2,720	27.2	923	9.2	1,797	18.0	88	32	2	0.8	623	6.2
1956.....	2,657	26.8	933	9.4	1,724	17.4	105	40	1	0.4	649	6.6
1957.....	2,676	27.0	916	9.3	1,760	17.7	75	28	2	0.7	627	6.3
1958.....	2,581	25.8	949	9.5	1,632	16.3	84	33	1	0.4	619	6.2
1959.....	2,720	26.7	1,007	9.9	1,713	16.8	85	31	—	—	639	6.3
1960.....	2,734	26.5	961	9.3	1,773	17.2	88	32	—	—	690	6.7
Nova Scotia—												
Av. 1941-45.....	15,146	25.2	6,326	10.5	8,820	14.7	870	57	41	2.7	6,302	10.5
" 1946-50.....	17,994	28.9	6,042	9.7	11,952	19.2	760	42	22	1.2	5,525	8.9
" 1951-55.....	18,246	27.5	5,802	8.8	12,444	18.7	586	32	13	0.7	5,283	8.0
1956.....	19,106	27.5	5,738	8.3	13,368	19.2	554	29	6	0.3	5,543	8.0
1957.....	19,316	27.5	5,977	8.5	13,339	19.0	526	27	13	0.7	5,206	7.4
1958.....	18,898	26.6	6,120	8.6	12,778	18.0	557	29	14	0.7	5,135	7.2
1959.....	19,038	26.6	6,371	8.9	12,667	17.7	591	31	8	0.4	5,310	7.4
1960.....	19,126	26.5	6,102	8.4	13,024	18.1	565	30	4	0.2	5,250	7.3
New Brunswick—												
Av. 1941-45.....	13,037	28.2	5,050	10.9	7,987	17.3	960	74	42	3.2	4,433	9.6
" 1946-50.....	16,878	34.0	4,886	9.8	11,992	24.2	1,015	60	23	1.4	4,864	9.8
" 1951-55.....	16,496	31.0	4,576	8.6	11,920	22.4	717	43	16	0.9	4,306	8.1
1956.....	16,573	29.9	4,658	8.4	11,915	21.5	656	40	9	0.5	4,591	8.3
1957.....	17,020	30.1	4,595	8.1	12,425	22.0	589	35	5	0.3	4,284	7.6
1958.....	16,414	28.4	4,528	7.8	11,886	20.6	568	35	8	0.5	4,170	7.2
1959.....	16,486	27.9	4,747	8.0	11,739	19.9	536	33	6	0.4	4,310	7.3
1960.....	16,341	27.2	4,670	7.8	11,671	19.4	488	30	10	0.6	4,430	7.4
Quebec—												
Av. 1941-45.....	97,906	28.4	34,273	9.9	63,633	18.5	6,690	68	318	3.2	33,126	9.6
" 1946-50.....	115,496	30.4	33,723	8.9	81,773	21.5	6,205	54	227	2.0	34,874	9.2
" 1951-55.....	128,523	30.0	34,269	8.0	94,254	22.0	5,662	44	149	1.2	35,584	8.3
1956.....	135,884	29.4	35,042	7.6	100,842	21.8	5,544	41	125	0.9	37,290	8.1
1957.....	141,707	29.8	36,234	7.6	105,473	22.2	5,412	38	115	0.8	37,135	7.8
1958.....	141,396	29.0	35,774	7.3	105,622	21.7	5,152	36	95	0.7	36,229	7.4
1959.....	142,383	28.5	36,390	7.3	105,993	21.2	4,735	33	104	0.7	37,124	7.4
1960.....	137,850	27.0	35,129	6.9	102,721	20.1	4,159	30	85	0.6	36,211	7.1
Ontario—												
Av. 1941-45.....	77,738	19.9	39,738	10.2	38,000	9.7	3,276	42	197	2.5	38,042	9.7
" 1946-50.....	105,161	24.6	42,214	9.9	62,947	14.7	3,795	36	129	1.2	44,084	10.3
" 1951-55.....	128,861	26.1	44,715	9.0	84,146	17.1	3,654	28	83	0.6	45,213	9.1
1956.....	143,516	26.6	47,231	8.7	96,285	17.9	3,610	25	70	0.5	46,282	8.6
1957.....	150,920	26.8	49,164	8.7	101,756	18.1	3,776	25	55	0.4	46,780	8.3
1958.....	152,637	26.3	48,677	8.4	103,960	17.9	3,801	25	70	0.5	46,894	8.1
1959.....	157,124	26.4	50,600	8.5	106,524	17.9	3,773	24	73	0.5	46,598	7.8
1960.....	159,245	26.2	51,484	8.5	107,761	17.7	3,745	24	55	0.3	45,585	7.5
Manitoba—												
Av. 1941-45.....	15,831	21.8	6,633	9.1	9,198	12.7	814	51	41	2.6	7,295	10.0
" 1946-50.....	19,325	25.9	6,702	9.0	12,623	16.9	810	42	24	1.3	7,605	10.2
" 1951-55.....	21,321	26.4	6,775	8.4	14,546	18.0	675	32	15	0.7	7,104	8.8
1956.....	21,945	25.8	7,058	8.3	14,887	17.5	676	31	6	0.3	6,709	7.9
1957.....	22,362	26.0	7,368	8.6	14,994	17.4	711	32	10	0.4	6,594	7.7
1958.....	21,697	24.9	7,145	8.2	14,552	16.7	656	30	12	0.6	6,430	7.4
1959.....	22,801	25.8	7,421	8.4	15,380	17.4	615	27	14	0.6	6,661	7.5
1960.....	23,237	25.8	7,471	8.3	15,766	17.5	698	30	9	0.4	6,606	7.3

¹ Excess of births over deaths.
1,000 live births.

² Deaths under one year of age.

³ Per 1,000 population.

⁴ Per

1.—Summary of Principal Vital Statistics, by Province, 1941-60—concluded

Province or Territory and Year	Live Births		Deaths		Natural Increase ¹		Infant Mortality ²		Maternal Mortality		Marriages	
	No.	Rate ³	No.	Rate ³	No.	Rate ³	No.	Rate ⁴	No.	Rate ⁴	No.	Rate ³
Saskatchewan—												
Av. 1941-45.....	18,444	21.7	6,437	7.6	12,007	14.1	858	47	52	2.8	6,541	7.7
" 1946-50.....	21,907	26.3	6,473	7.8	15,434	18.5	883	40	29	1.3	7,413	8.9
" 1951-55.....	23,554	27.5	6,547	7.6	17,007	19.9	743	32	16	0.7	6,876	8.0
1956.....	24,059	27.3	6,666	7.6	17,393	19.7	680	28	8	0.3	6,403	7.3
1957.....	23,921	27.2	6,743	7.7	17,178	19.5	609	25	5	0.2	6,510	7.4
1958.....	23,843	26.9	6,483	7.3	17,360	19.6	616	26	13	0.5	6,464	7.3
1959.....	24,319	27.0	7,003	7.8	17,316	19.2	626	26	10	0.4	6,388	7.1
1960.....	24,088	26.5	6,868	7.5	17,220	19.0	637	26	10	0.4	6,209	6.8
Alberta—												
Av. 1941-45.....	18,845	23.7	6,355	8.0	12,490	15.7	827	44	46	2.4	7,977	10.0
" 1946-50.....	24,290	28.4	6,814	8.0	17,476	20.4	889	37	25	1.0	9,090	10.6
" 1951-55.....	31,087	30.6	7,527	7.4	23,560	23.2	894	29	15	0.5	9,750	9.6
1956.....	34,951	31.1	7,786	6.9	27,165	24.2	860	25	14	0.4	9,965	8.9
1957.....	35,718	30.8	8,255	7.1	27,463	23.7	963	27	12	0.3	10,117	8.7
1958.....	36,842	30.7	8,237	6.9	28,605	23.8	932	25	17	0.5	10,186	8.5
1959.....	38,080	30.6	8,481	6.8	29,599	23.8	922	24	14	0.4	10,402	8.4
1960.....	39,009	30.4	8,888	6.9	30,121	23.5	1,022	26	7	0.2	10,482	8.2
British Columbia—												
Av. 1941-45.....	17,705	19.8	9,368	10.5	8,337	9.3	684	39	46	2.6	9,535	10.7
" 1946-50.....	25,869	24.0	10,922	10.2	14,867	13.9	868	34	31	1.2	11,564	10.7
" 1951-55.....	31,347	25.1	12,233	9.8	19,114	15.3	856	27	17	0.5	11,131	8.9
1956.....	36,241	25.9	13,415	9.6	22,826	16.3	944	26	13	0.4	11,950	8.5
1957.....	38,744	26.1	13,711	9.2	25,033	16.9	1,066	28	15	0.4	12,620	8.5
1958.....	39,577	25.6	13,741	8.9	25,836	16.7	1,077	27	15	0.4	12,094	7.8
1959.....	39,971	25.5	14,336	9.1	25,635	16.4	994	25	17	0.4	11,910	7.6
1960.....	40,116	25.0	14,696	9.2	25,420	15.8	946	24	19	0.5	11,203	7.0
Yukon Territory—												
Av. 1941-45.....	105	21.0	96	19.3	9	1.7	11	101	1	5.7	60	12.1
" 1946-50.....	254	31.7	91	11.4	163	20.3	16	63	--	1.6	73	9.1
" 1951-55.....	413	43.0	90	9.4	323	33.6	22	53	--	0.5	94	9.8
1956.....	481	40.1	85	7.1	396	33.0	23	48	—	—	112	9.3
1957.....	494	41.2	93	7.8	401	33.4	27	55	1	2.0	110	9.2
1958.....	473	36.4	92	7.1	381	29.3	20	42	—	—	109	8.4
1959.....	537	41.3	89	6.8	448	34.5	14	26	—	—	109	8.4
1960.....	538	38.4	97	6.9	441	31.5	26	48	—	—	107	7.6
Northwest Territories—												
Av. 1941-45.....	383	31.9	332	27.7	51	4.2	72	189	2	4.7	95	7.9
" 1946-50.....	626	39.1	372	23.2	254	15.9	87	139	3	5.4	139	8.7
" 1951-55.....	666	40.1	284	17.1	382	23.0	78	117	2	3.6	115	6.9
1956.....	785	41.3	291	15.3	494	26.0	117	149	3	3.8	146	7.7
1957.....	900	47.4	325	17.1	575	30.3	129	143	2	2.2	162	8.5
1958.....	945	47.3	333	16.7	612	30.6	143	151	4	4.2	148	7.4
1959.....	990	47.1	289	13.8	701	33.3	128	129	5	5.1	130	6.2
1960.....	1,094	49.7	312	14.2	782	35.5	158	144	—	—	191	8.7
Canada—⁵												
Av. 1941-45.....	277,320	23.5	115,572	9.8	161,748	13.7	15,176	55	793	2.9	114,091	9.7
" 1946-50.....	355,748	27.4	120,438	9.3	235,310	18.1	15,723	44	527	1.5	126,898	9.8
" 1951-55.....	416,334	28.0	126,666	8.5	289,668	19.5	14,552	35	353	0.8	128,915	8.7
1956.....	450,739	28.0	131,961	8.2	318,778	19.8	14,399	32	278	0.6	132,713	8.3
1957.....	469,093	28.3	136,579	8.2	332,514	20.1	14,517	31	255	0.5	133,186	8.0
1958.....	470,118	27.6	135,201	7.9	334,917	19.7	14,178	30	263	0.6	131,525	7.7
1959.....	479,275	27.5	139,913	8.0	339,362	19.5	13,595	28	263	0.5	132,474	7.6
1960.....	478,551	26.9	139,693	7.8	338,858	19.1	13,077	27	215	0.4	130,338	7.3

¹ Excess of births over deaths.² Deaths under one year of age.³ Per 1,000 population.⁴ Per⁵ Figures for Newfoundland are included from 1949.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,¹ Average 1951-55 and 1960

NOTE.—Urban centres are designated in this table by the following abbreviations: c.=city, t.=town, vl.=village, s.m.=suburban municipality, and d.m.=district municipality.

Province and Urban Centre	Live Births		Deaths		Natural Increase		Infant Mortality			Marriages ²	
	Av. 1951-55	1960	Av. 1951-55	1960	Av. 1951-55	1960	Av. 1951-55	1960		Av. 1951-55	1960
	No.	No.	No.	No.	No.	No.	Rate ³	No.	Rate ³	No.	No.
Newfoundland—											
Corner Brook, c.....	735	1,055	90	131	645	924	33	31	29	211	205
St. John's, c.....	1,878	1,979	507	496	1,371	1,483	40	39	20	692	746
Prince Edward Island—											
Charlottetown, c.....	477	419	206	212	271	207	30	13	31	176	170
Nova Scotia—											
Amherst, t.....	263	246	109	87	154	159	39	5	20	117	110
Dartmouth, t.....	633	970	103	127	530	843	18	22	23	188	179
Glace Bay, t.....	687	595	220	240	467	355	46	28	47	170	162
Halifax, c.....	2,482	2,254	725	747	1,757	1,507	24	57	25	1,183	1,086
New Waterford, t.....	369	362	87	76	282	286	50	11	30	95	91
Sydney, c.....	1,063	930	246	268	817	662	23	16	17	317	253
Truro, t.....	299	311	94	106	205	205	23	12	39	162	143
New Brunswick—											
Edmundston, c.....	398	324	68	68	330	256	36	3	9	107	77
Fredericton, c.....	453	496	153	170	300	326	32	4	8	244	235
Lancaster, c.....	...	279	...	83	...	196	...	4	14	...	78
Moncton, c.....	775	1,086	218	291	557	795	29	30	28	360	360
Saint John, c.....	1,499	1,507	556	598	943	909	27	28	19	548	565
Quebec—											
Alma, t.....	391	511	58	66	333	445	50	22	43	92	98
Arvida, c.....	389	374	46	52	343	322	43	13	35	70	82
Cap de la Madeleine, c.....	680	674	127	155	553	519	34	19	28	166	208
Chicoutimi, c.....	1,041	902	197	184	844	718	54	43	48	241	224
Dorval, c.....	265	397	43	77	222	320	23	6	15	25	57
Drummondville, c.....	548	690	138	167	410	523	55	27	39	158	220
Granby, c.....	854	851	176	182	678	669	33	26	31	257	259
Grand Mère, c.....	406	393	83	80	323	313	38	9	23	108	93
Hull, c.....	1,586	1,669	413	389	1,173	1,280	60	46	28	460	424
Jacques Cartier, c.....	1,051	1,214	186	184	865	1,030	55	32	26	149	193
Joliette, c.....	470	479	164	181	306	298	40	13	27	170	152
Jonquière, c.....	943	918	148	126	795	792	46	27	29	187	194
Kénogami, t.....	402	307	59	55	343	252	35	7	23	87	83
Lachine, c.....	777	880	234	259	543	621	28	11	13	267	257
LaSalle, t.....	480	924	87	168	293	756	27	16	17	77	90
La Tuque, t.....	315	368	65	70	250	298	32	11	30	82	88
Launon, c.....	263	245	79	66	184	179	56	4	16	76	88
Laval des Rapides, t.....	193	528	41	88	152	440	36	14	27	19	35
Lévis, c.....	338	333	118	99	220	234	57	11	33	96	97
Longueuil, c.....	391	476	106	105	285	371	40	16	34	108	111
Magog, c.....	404	322	101	79	303	243	36	6	19	105	96
Montreal, c.....	27,847	28,409	9,937	9,776	17,910	18,633	32	651	23	11,143	10,661
Montreal North, t.....	546	1,382	107	224	439	1,158	42	45	33	99	152
Mount Royal, t.....	237	258	73	93	164	165	19	6	23	82	162
Noranda, c.....	366	326	50	53	316	273	34	8	25	88	84
Outremont, c.....	302	294	275	266	27	28	24	3	10	325	227
Pointe aux Trembles, t.....	289	603	108	152	181	451	121	6	10	66	96
Pointe Claire, t.....	284	468	63	119	221	349	18	7	15	58	84
Quebec, c.....	4,316	4,026	1,630	1,535	2,686	2,491	62	137	34	1,756	1,633
Rimouski, t.....	448	479	82	88	366	391	50	10	21	98	95
Rouyn, c.....	595	563	100	92	495	471	48	17	30	104	113
St. Foy, c.....	304	857	38	102	266	755	27	17	20	26	67
St. Hyacinthe, c.....	643	477	248	253	295	224	32	17	36	212	220
St. Jean, c.....	571	750	168	159	503	591	38	24	32	202	195
St. Jérôme, c.....	596	661	134	163	462	498	49	21	32	199	226
St. Lambert, c.....	219	243	82	76	137	167	27	5	21	59	77
St. Laurent, c.....	886	1,159	163	258	723	901	23	13	11	151	229
St. Michel, c.....	553	2,119	76	193	477	1,926	27	49	23	74	164
Shawinigan, c.....	866	801	179	170	687	631	37	23	29	242	236
Shawinigan South, vl.....	311	342	40	53	271	289	32	8	23	62	57
Sherbrooke, c.....	1,751	1,721	463	477	1,288	1,244	41	29	23	537	518
Sillery, c.....	266	223	63	78	203	145	30	2	9	51	82

¹ As at the 1956 Census; residents only.

² By place of occurrence.

³ Per 1,000 live births.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,¹ Average 1951-55 and 1960—continued

Province and Urban Centre	Live Births		Deaths		Natural Increase		Infant Mortality			Marriages ²	
	Average 1951-55	1960	Average 1951-55	1960	Average 1951-55	1960	Average 1951-55	1960		Average 1951-55	1960
	No.	No.	No.	No.	No.	No.	Rate ³	No.	Rate ³	No.	No.
Quebec—concluded											
Sorel, c.	510	391	137	132	373	259	52	10	26	134	83
Thetford Mines, c.	574	636	126	136	448	500	46	15	24	149	145
Trois Rivières, c.	1,440	1,501	389	439	1,051	1,062	46	51	34	433	471
Valleyfield, c.	725	748	190	192	535	556	47	21	28	219	224
Verdun, c.	1,807	1,715	587	637	1,220	1,078	22	33	19	704	584
Victoriaville, t.	476	547	147	133	329	414	73	17	31	135	162
Westmount, c.	264	209	287	255	-23	-46	30	3	14	451	348
Ontario—											
Barrie, t.	432	588	137	167	295	421	25	12	22	184	188
Belleville, c.	540	820	195	260	345	560	29	21	26	254	251
Brampton, t.	254	474	94	104	160	370	28	12	25	114	118
Brantford, c.	989	1,213	409	501	580	712	28	24	20	458	513
Brookville, t.	308	404	145	161	163	243	40	12	30	148	143
Chatham, c.	569	825	223	317	346	508	31	24	29	298	264
Cornwall, c.	507	1,298	166	339	341	959	32	38	29	247	331
Eastview, t.	619	1,068	91	114	528	954	34	21	20	146	161
Forest Hill, vl.	232	233	107	172	125	61	15	7	30	27	8
Fort William, c.	991	1,085	319	347	672	738	21	25	23	411	359
Galt, c.	494	631	200	236	294	395	22	15	24	213	205
Guelph, c.	775	1,082	309	357	466	725	30	29	27	339	337
Hamilton, c.	5,682	6,820	2,014	2,298	3,668	4,522	28	127	19	2,545	2,302
Kenora, t.	255	284	74	119	181	165	26	15	53	110	92
Kingston, c.	1,182	1,425	448	512	734	913	31	33	23	474	484
Kitchener, c.	1,437	1,924	405	556	1,032	1,368	21	42	22	617	627
Leaside, t.	288	260	101	137	187	123	18	8	31	100	76
Lindsay, t.	228	260	129	133	99	127	37	6	23	116	103
London, c.	2,428	2,664	1,074	1,129	1,354	1,535	26	74	28	1,206	1,249
Long Branch, vl.	251	342	52	87	199	255	21	4	12	116	91
Mimico, t.	308	511	107	113	201	398	18	15	29	146	167
New Toronto, t.	233	387	81	88	152	299	13	7	18	114	50
Niagara Falls, c.	595	516	233	246	362	270	30	17	33	488	381
North Bay, c.	558	776	182	196	376	580	32	18	23	281	284
Orillia, t.	375	394	134	143	241	251	34	8	20	146	163
Oshawa, c.	1,239	1,759	325	396	914	1,363	30	43	24	449	487
Ottawa, c.	5,325	6,310	2,006	2,245	3,319	4,065	31	133	21	2,130	2,082
Owen Sound, c.	412	385	187	202	225	183	32	10	26	195	167
Pembroke, t.	430	598	129	147	301	451	47	10	17	176	193
Peterborough, c.	1,104	1,200	349	423	755	771	25	25	21	380	389
Port Arthur, c.	956	1,066	347	405	609	661	25	18	17	389	384
Port Colborne, t.	360	382	101	100	259	282	32	9	24	131	138
Riverside, t.	336	472	72	89	264	383	22	6	13	63	59
St. Catharines, c.	903	831	369	463	534	368	23	15	18	582	514
St. Thomas, c.	405	444	233	233	172	211	24	5	11	200	214
Sarnia, c.	1,188	1,393	291	344	897	1,049	32	26	19	365	347
Sault Ste. Marie, c.	1,014	1,202	292	343	722	859	25	32	27	448	547
Stratford, c.	432	446	218	240	214	206	28	4	9	161	169
Sudbury, c.	1,623	2,599	303	471	1,320	2,128	34	67	26	660	785
Timmins, t.	821	782	202	240	619	542	38	28	36	271	256
Toronto, c.	14,750	16,095	7,630	7,375	7,120	8,720	25	353	22	11,705	11,107
Trenton, t.	366	446	89	120	277	326	32	14	31	134	124
Waterloo, c.	368	501	96	144	272	357	18	13	26	127	110
Welland, c.	427	358	118	175	309	183	23	9	25	294	279
Windsor, c.	3,110	2,544	1,105	1,220	2,005	1,324	30	59	23	1,585	1,171
Woodstock, c.	390	514	167	226	223	288	19	16	31	175	162
Manitoba—											
Brandon, c.	555	667	201	261	354	406	26	15	22	287	237
Flin Flon, t.	367	280	47	46	320	234	27	7	25	90	78
Fort Garry, s.m.	..	432	..	88	..	344	..	8	19	..	71
Kildonan East, c.	..	707	..	139	..	568	..	11	16	..	110
Kildonan West, s.m.	..	432	..	103	..	329	..	5	12	..	67
Portage la Prairie, c.	263	390	93	103	170	287	31	11	28	129	112
St. Boniface, c.	753	1,094	209	320	544	774	27	30	27	280	283
St. James, c.	..	737	..	239	..	498	..	20	27	..	209
St. Vital, s.m.	..	613	..	167	..	446	..	13	21	..	133
Winnipeg, c.	5,766	6,359	2,408	2,747	3,358	3,612	26	167	26	3,350	2,805

¹ As at the 1956 Census; residents only.² By place of occurrence.³ Per 1,000 live births.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 10,000 Population or Over,¹ Average 1951-55 and 1960—concluded

Province and Urban Centre	Live Births		Deaths		Natural Increase		Infant Mortality			Marriages ²	
	Average 1951-55	1960	Average 1951-55	1960	Average 1951-55	1960	Average 1951-55	1960		Average 1951-55	1960
	No.	No.	No.	No.	No.	No.	Rate ³	No.	Rate ³	No.	No.
Saskatchewan—											
Moose Jaw, c.....	774	886	287	340	487	546	27	16	18	365	290
Prince Albert, c.....	558	717	133	182	425	535	29	15	21	279	267
Regina, c.....	2,143	3,201	589	736	1,554	2,465	23	92	29	1,039	1,001
Saskatoon, c.....	1,811	2,785	529	716	1,282	2,069	28	54	19	872	875
Swift Current, c.....	275	364	77	98	198	266	33	9	25	133	131
Alberta—											
Calgary, c.....	4,462	7,675	1,304	1,730	3,158	5,945	27	168	22	2,015	2,243
Edmonton, c.....	6,481	8,860	1,346	1,767	5,135	7,093	23	204	23	2,823	3,152
Jasper Place, t.....	442	1,155	37	101	405	1,054	18	19	16	16	25
Lethbridge, c.....	816	921	195	305	621	616	25	23	25	406	372
Medicine Hat, c.....	464	596	173	231	291	365	20	22	37	283	261
Red Deer, c.....	358	621	73	122	285	499	23	20	32	173	231
British Columbia—											
Burnaby, d.m.....	..	2,327	..	749	..	1,578	..	36	15	..	479
Chilliwack, d.m.....	..	458	..	127	..	331	..	11	24	..	130
Coquitlam, d.m.....	..	768	..	118	..	650	..	13	17	..	70
Esquimalt, d.m.....	..	339	..	95	..	244	..	6	18	..	101
Langley, d.m.....	..	306	..	142	..	164	..	9	29	..	56
Maple Ridge, d.m.....	..	373	..	159	..	214	..	7	19	..	67
Matsqui, d.m.....	..	340	..	108	..	232	..	8	24	..	75
Nanaimo, c.....	331	437	151	167	180	270	25	13	30	208	194
New Westminster, c.....	584	588	272	345	312	243	19	6	10	574	485
North Vancouver, c.....	647	662	190	201	457	461	19	13	20	152	149
North Vancouver, d.m.....	..	972	..	206	..	766	..	13	13	..	101
Oak Bay, d.m.....	..	182	..	216	..	-34	..	6	33	..	62
Pentiction, c.....	247	259	89	121	158	138	32	3	12	107	100
Port Alberni, c.....	255	340	56	69	199	271	25	8	24	92	86
Prince George, c.....	370	639	69	86	301	553	33	14	22	154	200
Prince Rupert, c.....	302	384	95	94	207	290	41	15	39	135	112
Richmond, d.m.....	..	1,321	..	214	..	1,107	..	24	18	..	126
Saanich, d.m.....	..	1,022	..	414	..	608	..	22	22	..	129
Surrey, d.m.....	..	1,998	..	467	..	1,531	..	37	19	..	201
Trail, c.....	380	293	74	70	306	223	21	4	14	115	92
Vancouver, c.....	7,738	8,142	4,223	4,793	3,515	3,349	22	167	21	4,587	4,047
Victoria, c.....	1,159	1,123	768	888	391	235	21	27	24	777	637
West Vancouver, d.m.....	..	429	..	190	..	239	..	9	21	..	127

¹ As at the 1956 Census; residents only.² By place of occurrence.³ Per 1,000 live births.

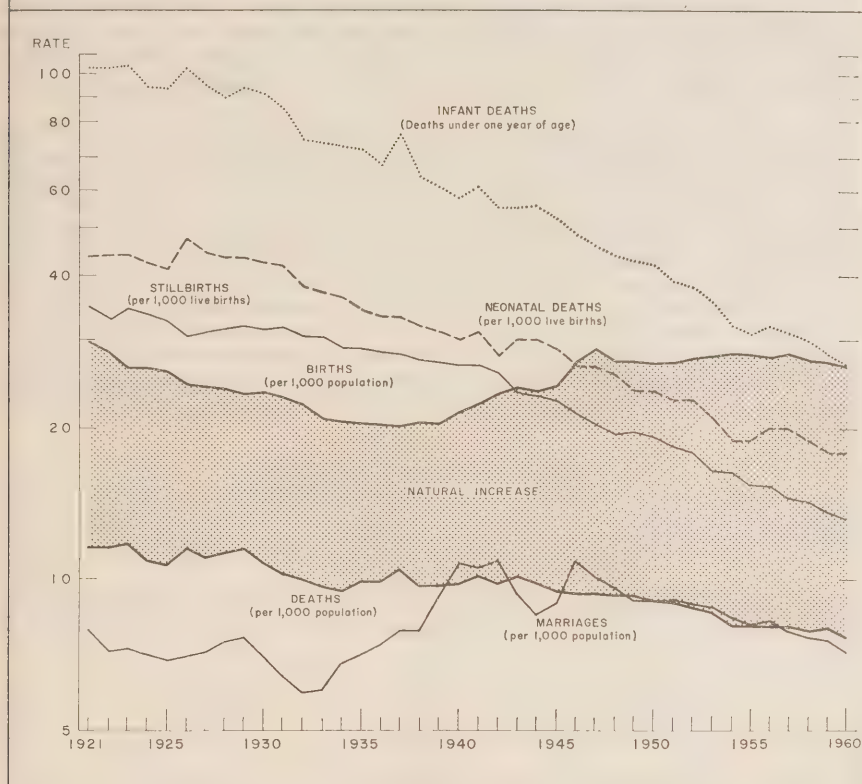
Section 2.—Births*

The Canadian birth rate in 1921 was 29 per 1,000 population. As a rate of 35 is very high for countries of modern western civilization, the Canadian rate had probably not fallen far, nor for long, before 1921. It fell continuously until 1937 when it reached a low of 20.1 but, as a result of economic recovery and the War, it rose to 21.6 in 1940, 24.3 in 1945 and 28.9 in 1947, the highest since 1921. From 1948 to 1959 it fluctuated between 27.1 and 28.5 but in 1960 stood at 26.9, the lowest since 1946.

The birth rates in most provinces followed similar trends but there were some regional differences in the birth rate pattern in recent years. Although all provinces had record high rates immediately following World War II, average birth rates in Ontario and the western provinces were higher during 1951-55 than for the 1946-50 period, while those for Quebec and the Maritimes were lower. In fact, Ontario, British Columbia and Alberta had record high crude birth rates during the 1956-59 period. However, all provincial birth rates declined or remained stationary between 1959 and 1960.

* Unless otherwise indicated, "births" in this Section refers to infants born *alive*; stillbirths are dealt with under a separate heading on p. 194 and under multiple births on p. 190. For international comparisons, see Section 7, pp. 214-215.

VITAL STATISTICS RATES, 1921-60



It is often assumed that the Province of Quebec has the highest birth rate in Canada, but Table 1 shows that since the late 1930's or early 1940's Newfoundland and, in some years, New Brunswick have had higher rates than Quebec. In 1960, Newfoundland had a crude rate of 33.1 followed by Alberta with a rate of 30.4, New Brunswick with 27.2 and Quebec with 27.0; British Columbia and Manitoba had the lowest rates at 25.0 and 25.8, respectively.

It should be noted, however, that these crude rates are based on total population and therefore do not reflect the fertility of the women who are of reproductive age in the different provinces (see pp. 190-191). A more accurate measure of fertility is the rate based on the number of married women in the population in the main reproductive ages, 15 to 44 years. The numbers of children born in 1958, 1959 and 1960 to every 1,000 married women in this age group were as follows:—

Province	1958	1959	1960	Province	1958	1959	1960
Prince Edward Island....	214	221	223	Saskatchewan.....	188	190	189
Nova Scotia.....	189	190	191	Alberta.....	194	194	194
New Brunswick.....	216	213	210	British Columbia.....	163	163	162
Quebec.....	212	209	199				
Ontario.....	166	167	167	CANADA ¹	184	185	182
Manitoba.....	168	175	177				

¹ Excludes Newfoundland and the Territories for which data are not available.

On this basis, Prince Edward Island, New Brunswick and Quebec, in that order, had the highest fertility rates and British Columbia and Ontario the lowest.

Also contrary to popular impression, since 1953 more babies were born each year in Ontario than in the Province of Quebec; in 1960, 159,245 babies were born to Ontario mothers as compared with 137,850 to Quebec mothers. Altogether, 478,551 children were born in Canada in 1960, a slight decline from the record 479,275 born in 1959.

Sex of Live Births.—Wherever birth statistics have been collected they have shown an excess of male over female births. No conclusive explanation of this excess has yet been given. Nevertheless it is so much an accepted statistical fact that a proper ratio of male to female births has become one of the criteria of complete registration. The number of males to every 1,000 females born in Canada has averaged around 1,057 since the middle 1930's. Provincial sex ratios vary much more widely because of the relatively small number of births involved—the smaller the total number of births, the greater the chance of wide sex-ratio variations from year to year. Another commonly acknowledged fact in many countries—although there is no generally accepted explanation for it—is that the male ratio appears to rise during or shortly after major wars. This seems to have happened in Canada between 1942 and 1945 when the ratio rose to an average of 1,064 during these four years as compared with averages of 1,054 between 1931-41 and 1,057 since 1946.

3.—Sex Ratios of Live Births, 1941-60

NOTE.—Figures for Newfoundland are included from 1949 and those for the Yukon and Northwest Territories from 1950.

Year	Males	Females	Males to 1,000 Females	Year	Males	Females	Males to 1,000 Females
	No.	No.	No.		No.	No.	No.
1941.....	131,175	124,142	1,057	1951.....	195,918	185,174	1,058
1942.....	140,584	131,729	1,067	1952.....	208,070	195,489	1,064
1943.....	145,725	137,855	1,057	1953.....	214,423	203,461	1,054
1944.....	146,652	137,568	1,066	1954.....	224,168	212,030	1,057
1945.....	148,912	139,818	1,065	1955.....	227,382	215,555	1,055
1946.....	169,945	160,787	1,057	1956.....	231,697	219,042	1,058
1947.....	183,973	175,121	1,051	1957.....	241,073	228,020	1,057
1948.....	178,123	169,184	1,053	1958.....	241,675	228,443	1,058
1949.....	188,339	177,800	1,059	1959.....	246,073	233,202	1,055
1950.....	191,413	180,596	1,060	1960.....	246,029	232,522	1,058

Hospitalized Births.—In 1960 over 94 p.c. of all Canadian births occurred in hospital as compared with 87 p.c. in 1955. Table 4 shows the rise in hospitalized births in each province since 1931. Before the initiation in 1958 of the federal-provincial hospital insurance programs—in which all provinces except Quebec were participating in 1960—there were rather wide variations among the provinces in percentages of hospitalized births. Such variations were caused by the existence of prepaid or provincially sponsored hospital, maternity or medical care plans in some provinces, the unavailability of hospital facilities in others—particularly in remote rural areas—and preference for home delivery in some local areas. Although some variation still exists, the operation of the hospital insurance program has probably been responsible for the noticeable increases in hospitalized births in provinces that previously had lower proportions, for example in New Brunswick where the hospital insurance plan was put into effect on July 1, 1959.

4.—Percentages of Live Births Hospitalized, by Province, 1931-60

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada ¹
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1931.....	11.2	19.0	12.1	7.3	38.2	43.6	32.5	47.8	65.0	..	..	26.8
1941.....	32.7	50.4	30.8	17.6	67.5	73.6	63.2	77.1	87.3	..	..	48.9
1951.....	88.3	87.2	70.7	53.0	93.1	93.1	95.2	93.6	97.3	87.4	32.8	79.1
1955.....	93.6	93.3	83.4	66.6	96.7	95.6	97.7	95.0	98.1	89.3	45.5	86.5
1956.....	95.2	93.9	84.7	71.2	97.3	95.8	97.6	96.6	98.3	87.7	44.6	88.4
1957.....	96.7	95.1	86.8	75.6	97.9	96.4	98.3	97.5	98.5	91.3	38.6	90.2
1958.....	99.0	96.2	88.5	79.3	98.0	96.8	98.5	97.7	98.5	92.6	42.1	91.7
1959.....	99.2	98.0	93.5	82.3	98.6	97.4	98.5	98.0	98.6	88.6	45.7	93.1
1960.....	99.4	98.6	97.7	85.2	99.0	98.0	99.0	98.5	98.8	93.3	51.7	94.6

¹ Excludes Newfoundland for which data are not available.

Births in Urban Centres.—Table 2, pp. 184-186, shows the number of births in 1960, as compared with the average for 1951-55, to mothers residing in each urban centre of 10,000 population or over.

Illegitimacy.*—In 1960, over 4 p.c. of the live births in Canada were illegitimate. This percentage is low compared with that of many countries of the world.

* The term "illegitimate", for statistical purposes, does not refer to births conceived out of wedlock but to those in which parents reported themselves as not having been married to each other at the time of birth or registration, in Ontario, those in which the marital status of the mother was reported as "single".

5.—Illegitimate Live Births and Percentages of Total Live Births, by Province, 1941-60

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada ¹
ILLEGITIMATE LIVE BIRTHS													
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Av. 1941-45.	406	107	1,074	591	3,003	3,751	597	673	852	889	..	..	11,536
" 1946-50.	441	152	1,244	754	3,382	4,256	766	914	1,202	1,516	..	..	14,375
" 1951-55.	426	139	1,082	659	4,086	4,065	969	1,044	1,481	1,898	53	50	15,951
1956.....	529	154	1,194	688	4,454	4,415	1,002	1,058	1,674	2,207	60	75	17,510
1957.....	635	142	1,168	711	4,506	4,796	1,070	1,168	1,810	2,473	63	87	18,629
1958.....	592	131	1,165	698	4,625	4,907	1,176	1,138	1,896	2,515	75	108	19,027
1959.....	550	140	1,230	708	4,888	5,218	1,226	1,282	2,128	2,658	76	117	20,221
1960.....	626	126	1,249	632	4,902	5,119	1,356	1,326	2,197	2,673	84	123	20,413
PERCENTAGES OF TOTAL LIVE BIRTHS													
Av. 1941-45.	4.4	4.9	7.1	4.5	3.1	4.8	3.8	3.6	4.5	5.0	..	..	4.2
" 1946-50.	3.6	5.3	6.9	4.5	2.9	4.0	4.0	4.2	4.9	5.9	..	..	4.1
" 1951-55.	3.2	5.1	5.9	4.0	3.2	3.2	4.5	4.4	4.8	6.1	12.9	7.5	3.8
1956.....	3.6	5.8	6.2	4.2	3.3	3.1	4.6	4.4	4.8	6.1	12.5	9.6	3.9
1957.....	4.1	5.3	6.0	4.2	3.2	3.2	4.8	4.9	5.1	6.4	12.8	9.7	4.0
1958.....	4.0	5.1	6.2	4.3	3.3	3.2	5.4	4.8	5.1	6.4	15.9	11.4	4.0
1959.....	3.7	5.1	6.5	4.3	3.4	3.3	5.4	5.3	5.6	6.6	14.2	11.8	4.2
1960.....	4.1	4.6	6.5	3.9	3.6	3.2	5.8	5.5	5.6	6.7	15.6	11.2	4.3

¹ Figures for Newfoundland are included from 1949, and those for the Yukon and Northwest Territories from 1951.

Multiple Births.—Approximately one confinement in 90 in Canada results in the birth of more than one child as compared with one in 85 several years ago—in other words, the chances of a confinement resulting in the birth of more than one child are fewer now than formerly. However, in 1960 there were two sets of quadruplets born in Canada, the first since 1957. Other facts illustrated by Table 6 are that the proportion of stillbirths is higher among multiple than among single births and is about twice as high for twins and between three and five times as high for triplets.

6.—Single and Multiple Births, Live and Stillborn, 1957-60

Confinements and Births	Numbers				Percentages			
	1957	1958	1959	1960	1957	1958	1959	1960
Confinements	470,651	471,436	480,524	479,786	100.0	100.0	100.0	100.0
Single.....	465,423	466,065	475,266	474,613	98.9	98.9	98.9	98.9
Twin.....	5,178	5,334	5,205	5,112	1.1	1.1	1.1	1.1
Triplet.....	49	37	53	59	--	--	--	--
Quadruplet.....	1	—	—	2	--	—	—	--
Births	475,930	476,844	485,835	485,022	100.0	100.0	100.0	100.0
Single—								
Live.....	458,859	459,652	469,022	468,469	98.6	98.6	98.7	98.7
Stillborn.....	6,564	6,413	6,244	6,144	1.4	1.4	1.3	1.3
Twin—								
Live.....	10,093	10,360	10,110	9,907	97.5	97.1	97.1	96.9
Stillborn.....	263	308	300	317	2.5	2.9	2.9	3.1
Triplet—								
Live.....	137	106	143	168	93.2	95.5	89.9	94.9
Stillborn.....	10	5	16	9	6.8	4.5	10.1	5.1
Quadruplet—								
Live.....	4	—	—	7	100.0	—	—	87.5
Stillborn.....	—	—	—	1	—	—	—	12.5
Totals, Live Births	469,093	470,118	479,275	478,551	98.6	98.6	98.6	98.7
Totals, Stillborn	6,837	6,726	6,560	6,471	1.4	1.4	1.4	1.3

Fertility Rates.—The sex and age composition of a population is obviously an important factor in determining *crude** birth, marriage and death rates. Since more than 99 p.c. of the children born each year are to women between the ages of 15 and 50, variations in the proportion of women of these ages to the total population will, of course,

* A *crude* rate is one based on the total population.

cause variations in the crude birth rate of different countries—or regions within a country—even though the actual rates of reproduction or 'fertility' of the women in these age groups in each country or region are identical.

In order to eliminate such age-sex differences in populations and to obtain a more accurate measure of actual fertility among women in the reproductive period, it is conventional practice to calculate what are termed *age-specific fertility rates*, i.e., the number of infants born annually to every 1,000 women in each of the reproductive age periods. Table 7 indicates that in 1960 women in their 20's were the most reproductive; that, on the average, for every 1,000 women between the ages of 20 and 25, 229 infants were born in 1960 or, expressed another way, about one woman out of four in that age group gave birth to a live-born infant during the year.

7.—Fertility Rates per 1,000 Women, by Age Group, 1941-60

(Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941-49)

Year	Age Group							Gross Reproduction Rate
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1941.....	30.7	138.4	159.8	122.3	80.0	31.6	3.7	1.377
1942.....	32.0	145.1	168.7	128.0	83.0	32.3	3.6	1.434
1943.....	32.1	146.8	175.4	131.9	86.5	31.9	3.5	1.478
1944.....	31.3	143.3	168.7	124.1	88.1	33.0	3.4	1.457
1945.....	31.6	143.3	168.8	134.3	90.3	33.5	3.7	1.462
1946.....	36.5	169.6	191.4	146.0	93.1	34.5	3.8	1.640
1947.....	42.6	189.1	206.4	150.5	93.1	34.1	3.3	1.753
1948.....	43.2	181.1	197.6	141.4	89.0	32.6	3.3	1.676
1949.....	45.2	181.5	201.2	139.7	88.8	31.5	3.2	1.678
1950.....	46.0	181.3	200.6	141.3	87.9	30.8	3.0	1.678
1951.....	48.1	188.7	198.8	144.5	86.5	30.9	3.1	1.701
1952.....	50.4	201.0	205.2	150.7	87.4	30.7	2.8	1.763
1953.....	52.0	208.2	208.4	153.2	88.1	31.2	2.9	1.812
1954.....	54.3	217.4	213.2	156.5	88.5	32.4	3.2	1.861
1955.....	54.2	218.3	215.1	153.8	89.8	32.3	2.9	1.863
1956.....	55.9	222.2	220.1	150.3	89.6	30.8	2.9	1.874
1957.....	60.3	226.4	225.0	149.6	91.4	30.6	2.8	1.910
1958.....	59.5	225.0	224.7	148.0	88.9	28.7	2.7	1.890
1959.....	60.6	231.2	228.5	148.0	88.9	28.2	2.7	1.917
1960.....	59.9	229.2	227.1	146.9	86.4	28.1	2.4	1.896

A still more accurate measure of fertility would be portrayed by what are termed *age-marital specific rates*, i.e., similar rates for married women in each age group. However, these are more difficult to obtain since the number of married women in the population of each age is generally known only at the time of a national census, whereas the numbers of total women can be estimated much more easily between census periods.

Another measure of fertility in a country is obtainable from *reproduction rates*. The gross reproduction rates shown in Table 7 indicate the average number of female children born each year to each woman living through the child-bearing ages. In other words, this figure represents the average number of females that would be born to each woman who lived to age 50 if the fertility rates of the given year remained unchanged during her child-bearing period. A gross reproduction rate of one indicates that, on the basis of current fertility and without making any allowance for mortality among mothers during their child-bearing years, the present generation of child-bearing women would exactly maintain itself. Canada has always had one of the highest gross reproduction rates among the industrialized countries of the world. Even during the period of low birth rates in the

1930's the rate varied between 1.3 and 1.5 and since World War II has ranged between 1.7 and almost 2.0; in 1960 the rate stood at 1.896, almost double the number required for the population to replace itself. With minor exceptions, provincial reproduction rates are also well above the replacement level.

Age of Parents.—Age of parents is an important variable in any analysis of birth statistics. The distribution of legitimate and illegitimate live births by age of the parents is given in Table 8, as well as the average age of parents.

Over 7 p.c. of the legitimate children born in 1960 were born to mothers under 20 years of age, in over one-third of the births the mother was under 25 years, and in almost two-thirds, under 30 years; in one out of six births the father was under 25 years of age, and in almost 48 p.c. of all births the father was under 30 years. On the other hand, over one-third (37.8 p.c.) of the illegitimate infants born were born to mothers under 20 years of age and an additional one-third to mothers under 25 years. The average age of all the married mothers to whom a child was born in 1960 was slightly over 28, and of the fathers 31.4 years; ten years ago the average ages of the parents were 28.4 and 32.1, and thirty years ago 29.2 and 33.6, respectively.

8.—Live Births, by Age of Parents, 1960

(Exclusive of Newfoundland)

Age Group	Legitimate				Illegitimate	
	Fathers		Mothers		Mothers	
	No.	p.c.	No.	p.c.	No.	p.c.
Under 20 years.....	4,610	1.0	31,814	7.2	7,275	37.8
20 — 24 “.....	74,329	16.8	127,832	28.8	6,359	33.0
25 — 29 “.....	132,931	30.1	128,034	28.9	2,860	14.9
30 — 34 “.....	109,556	24.8	88,771	20.0	1,535	8.0
35 — 39 “.....	68,536	15.5	50,856	11.5	931	4.8
40 — 44 “.....	33,080	7.5	15,015	3.4	272	1.4
45 — 49 “.....	13,173	3.0	1,109	0.3	15	0.1
50 years or over.....	5,426	1.2	15	--	1	--
Totals, Stated Ages.....	441,641	100.0	443,446	100.0	19,248	100.0
Ages not stated.....	1,950	...	145	...	539	...
Totals, All Ages.....	443,591	100.0	443,591	100.0	19,787	100.0
Average ages.....	31.4		28.1		23.7	

Order of Birth.—Table 9 shows the order of birth of all live-born infants in 1960 according to age of the mother. As would be expected, 28,672 or three out of every four of the 39,089 infants born to mothers under 20 years of age were first children, whereas almost six out of every ten of the children born to mothers of 20-24 years were second or later children. This is a reflection of the earlier marriages and heavy fertility of recent years. In 1960, 210 infants were born to mothers who had not yet reached their 15th birthday.

9.—Order of Birth of Live-Born Children, by Age of Mother, 1960

(Exclusive of Newfoundland)

Order of Birth of Child	Age of Mother										Percentage of Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 or Over	Age Not Stated	All Ages	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1st child.....	208	28,464	55,210	24,327	8,740	3,251	721	55	525	121,501	28.2
2nd ".....	2	8,500	43,752	34,828	15,087	5,430	1,019	47	58	108,723	23.5
3rd ".....	—	1,671	22,202	30,697	19,216	7,954	1,594	82	26	83,442	18.0
4th ".....	—	221	8,755	19,351	16,245	8,281	1,871	95	18	54,837	11.8
5th ".....	—	19	3,039	10,823	10,893	6,919	1,802	100	9	33,604	7.3
6th ".....	—	4	903	5,687	7,423	5,416	1,590	106	7	21,136	4.6
7th ".....	—	—	260	2,908	4,766	3,927	1,317	107	5	13,290	2.9
8th ".....	—	—	54	1,366	3,233	2,987	1,139	95	3	8,877	1.9
9th ".....	—	—	10	571	2,098	2,316	768	88	5	6,021	1.3
10th ".....	—	—	4	212	1,323	1,641	768	69	2	4,019	0.9
11th ".....	—	—	—	81	677	1,260	674	68	4	2,764	0.6
12th ".....	—	—	1	8	308	918	531	60	2	1,851	0.4
13th ".....	—	—	—	173	606	425	44	1	1	1,257	0.3
14th ".....	—	—	—	2	62	424	299	25	—	816	0.2
15th ".....	—	—	—	1	37	231	229	29	—	527	0.1
16th ".....	—	—	—	1	18	123	167	27	—	336	0.1
17th ".....	—	—	—	—	3	55	94	12	—	164	—
18th ".....	—	—	—	—	3	26	52	10	—	91	—
19th ".....	—	—	—	—	1	14	37	4	—	56	—
20th or over.....	—	—	—	—	—	8	25	14	—	47	—
Not stated.....	—	—	1	—	—	—	—	—	18	19	—
Totals.....	210	38,879	134,191	130,894	90,306	51,787	15,287	1,140	684	463,378	100.0

Table 10 summarizes the pattern of family formation since 1941. The results of the immediate postwar 'baby boom' are obvious—57.9 p.c. of the infants born in 1947 were first or second children while fewer than half of the 1960 babies were first or second children.

10.—Percentage Distribution of Legitimate Live Births, by Order of Birth, 1941-60

(Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941-49)

Year	1st Child	2nd Child	3rd Child	4th and Later Children	Total
1941.....	32.7	21.8	13.5	32.0	100.0
1942.....	32.8	23.1	13.4	30.6	100.0
1943.....	32.2	23.7	14.2	29.9	100.0
1944.....	30.0	24.2	14.9	30.9	100.0
1945.....	28.9	24.3	15.4	31.4	100.0
1946.....	31.0	24.8	15.2	29.0	100.0
1947.....	33.0	24.9	15.0	27.2	100.0
1948.....	29.6	26.0	15.9	28.5	100.0
1949.....	27.8	26.6	16.8	28.8	100.0
1950.....	26.7	26.2	17.4	29.6	100.0
1951.....	26.7	25.8	17.6	29.9	100.0
1952.....	26.9	24.8	17.9	30.3	100.0
1953.....	26.5	25.0	18.0	30.6	100.0
1954.....	26.1	24.6	18.0	31.2	100.0
1955.....	25.5	24.4	18.2	31.9	100.0
1956.....	25.2	24.3	18.3	32.2	100.0
1957.....	25.6	23.9	18.3	32.2	100.0
1958.....	25.4	23.8	18.2	32.6	100.0
1959.....	24.8	24.0	18.2	32.9	100.0
1960.....	24.5	23.8	18.5	33.1	100.0

Stillbirths.*—The 6,471 stillbirths in 1960 represented a ratio of 13.5 for every 1,000 foetuses born alive. As is evident from Table 11, the stillbirth rate has been decreasing steadily and has been cut by more than half over the past quarter-century. Although the variations between provincial rates have never been wide, rates in some provinces have been reduced more than in others. The stillbirth rate among unmarried mothers has been consistently higher than that among married mothers, but the difference has been narrowing in recent years; in 1959, for example, the rate for unmarried mothers was actually lower than that for married mothers, but this was reversed again in 1960.

*Although there are at present some provincial differences in the requirements for compulsory registration of stillbirths (i.e., with respect to minimum gestational age-limits and specific criteria of life), stillbirths, as referred to here, may be summarized as including "foetuses of 28 or more weeks of gestation, which did not show any sign of life".

11.—Stillbirths and Rates per 1,000 Live Births, by Province, 1941-60

Year	Born to All Mothers													Born to Unmarried Mothers ¹	
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N. W. T.	Can-ada ²	No.	P.C. of Total
STILLBIRTHS															
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.		
Av. 1941-45	191	50	388	295	2,786	1,988	345	348	327	309	1	6	6,845	355	5.20
" 1946-50	215	54	358	320	2,898	2,020	349	350	385	352	2	8	7,187	343	4.85
" 1951-55	222	52	337	291	2,705	2,017	336	313	425	374	6	11	7,088	316	4.60
1956	260	51	337	331	2,584	1,969	316	291	409	413	4	11	6,976	311	4.63
1957	259	46	325	252	2,551	1,999	302	280	385	422	5	11	6,837	299	4.55
1958	267	42	319	254	2,424	2,017	309	270	395	414	5	10	6,726	286	4.43
1959	307	54	261	252	2,324	2,016	299	247	376	404	6	14	6,560	237	3.79
1960	275	36	279	246	2,346	1,960	279	221	373	437	7	12	6,471	320	5.16
RATES PER 1,000 LIVE BIRTHS														Rate per 1,000 Illegitimate Live Births ¹	
Av. 1941-45	20.5	22.8	25.6	22.6	28.5	25.6	21.8	18.9	17.4	17.5	11.4	15.7	24.7	30.8	
" 1946-50	17.4	18.9	19.9	19.0	25.1	19.2	18.1	16.0	15.9	12.6	8.7	12.5	20.2	24.2	
" 1951-55	17.0	19.0	18.4	17.7	21.0	15.6	15.7	13.3	13.7	11.9	14.1	16.5	17.0	20.3	
1956	17.9	19.2	17.6	20.0	19.0	13.7	14.4	12.1	11.7	11.4	8.3	14.0	15.5	18.3	
1957	16.9	17.2	16.8	14.8	18.0	13.2	13.5	11.7	10.8	10.9	10.1	12.2	14.6	16.6	
1958	18.0	16.3	16.9	15.5	17.1	13.2	14.2	11.3	10.7	10.5	10.6	10.6	14.3	15.5	
1959	20.7	19.9	13.7	15.3	16.3	12.8	13.1	10.2	9.9	10.1	11.2	14.1	13.7	12.0	
1960	18.1	13.2	14.6	15.1	17.0	12.3	12.0	9.2	9.6	10.9	13.0	11.0	13.5	16.2	

¹ Exclusive of Newfoundland for all years and the Yukon and Northwest Territories for 1941-50. ² Figures for Newfoundland are included from 1949.

Table 12 illustrates the fact that the risk of having a stillborn child increases with the age of the mother. Although stillbirth rates for mothers of all ages have been declining, they continue to be three times as high among mothers of 40-44 years and between four and six times as high among those over 45 years as for mothers under 30.

The average age of mothers who bore stillborn children in 1960 was 30.1 years; as shown in Table 8, the average age of mothers who bore legitimate live-born children was 28.1 and of those who bore illegitimate live-born offspring was 23.7.

12.—Stillbirths and Rates per 1,000 Live Births, by Age of Mother, 1960

(Exclusive of Newfoundland)

Age Group of Mother	Numbers		Stillbirth Rate per 1,000 Live Births
	Live Births	Stillbirths	
	No.	No.	No.
Under 20 years.....	39,089	396	10.1
20 — 24 ".....	134,191	1,292	9.6
25 — 29 ".....	130,894	1,513	11.6
30 — 34 ".....	90,306	1,362	15.1
35 — 39 ".....	51,787	1,083	20.9
40 — 44 ".....	15,287	455	29.8
45 — 49 ".....	1,124	73	64.9
50 years or over.....	16	3	187.5
Ages not stated.....	684	19	...
Totals, All Ages.....	463,378	6,196	13.4
Average age of mothers.....	30.1		

Section 3.—Deaths*

The Canadian crude death rate (i.e., per 1,000 total population) has moved downward steadily from 10.2 in 1931 to 8.2 for each of the years 1954 to 1957 and, following a record low of 7.9 in 1958, rose to 8.0 in 1959 and dropped to a new record low of 7.8 in 1960, giving Canada one of the lowest crude death rates in the world. Table 1, pp. 182-183, shows that this trend has been apparent in varying degrees in all provinces. The generally low rates in the Prairie Provinces are partly the result of their younger average population; the uniformly higher rate in British Columbia is mainly attributable to a high proportion of people in the older age groups.

Subsection 1.—General Mortality

Age and Sex Distribution of Deaths.—During the period of national vital statistics (1921 to date), the mortality pattern at all ages has been steeply downward. Of major significance in lowering the over-all death rate have been reductions in infant mortality, in childhood death rates and in those of young adults. In 1931 over 19 p.c. of all male deaths occurred among persons of five to 45 years of age; in 1960 only a little over 10 p.c. of all male deaths took place in this age group. Among females in the same age group the proportion dropped from just under 22 p.c. to less than 8 p.c. in the same period. While death rates for males up to age 45 have been roughly halved during the past 25 years, those for females under 45 years have been reduced as much as three to four times. In other words, the death rates for females at every age have declined more than those for males; the male rates have almost always been consistently higher than those for females and the differences are widening. The male death rate stood at 9.1 per 1,000 male population in 1960 as compared with only 6.6 for females.

* For international comparisons, see Section 7, pp. 214-215.

Despite the very considerable reduction in infant mortality over the past 25 or 30 years, more deaths still occur in the first year of life than in any other single year. Of the 104,517 deaths occurring in 1931, 25,737 or almost one-quarter were of children under five years of age and over three-quarters of those were of children under one year of age. On the other hand, of the 139,693 deaths in 1960, 15,144 or 11 p.c. were of children under five years of age, and of those 13,077 or over 86 p.c. were under one year. Most of the reduction took place among children over the age of one month but there was also a notable decrease in all childhood ages up to five years.

The reductions in the mortality rates in early and middle years of life have had the effect of increasing the number of people in the older age groups and raising the average age at death. In 1931 the average age at death of males was 43.1 years and of females 44.8 years; by 1960 this had advanced to 59.5 years and 62.7 years, respectively. These trends are indicated clearly in Table 13.

13.—Distribution of Deaths, by Age and Sex, 1931, 1941, 1951 and 1960

Age Group	1931 ¹		1941 ¹		1951		1960	
	Male	Female	Male	Female	Male	Female	Male	Female
NUMBERS								
Under 1 year.....	11,667	8,693	8,788	6,448	8,375	6,298	7,572	5,505
1 — 4 years.....	2,844	2,533	1,878	1,566	1,421	1,151	1,153	914
5 — 9 ".....	1,241	963	888	670	711	466	698	427
10 — 14 ".....	821	806	787	536	461	284	541	292
15 — 19 ".....	1,311	1,132	1,118	823	721	457	893	346
20 — 24 ".....	1,502	1,453	1,332	1,039	1,009	549	923	336
25 — 29 ".....	1,388	1,414	1,317	1,173	988	660	918	406
30 — 34 ".....	1,301	1,432	1,211	1,148	1,070	778	1,015	548
35 — 39 ".....	1,512	1,574	1,497	1,242	1,281	1,015	1,444	896
40 — 44 ".....	1,888	1,493	1,744	1,464	1,756	1,266	1,835	1,162
45 — 49 ".....	2,314	1,738	2,416	1,817	2,463	1,607	3,042	1,699
50 — 54 ".....	2,855	1,993	3,355	2,227	3,525	2,083	4,028	2,156
55 — 59 ".....	3,057	2,246	4,394	2,851	4,741	2,832	5,511	2,759
60 — 64 ".....	3,583	2,855	5,288	3,483	6,465	3,902	6,870	3,802
65 — 69 ".....	4,249	3,348	6,057	4,412	8,007	5,119	8,326	5,168
70 — 74 ".....	4,867	4,073	6,495	4,981	8,743	6,439	10,597	7,080
75 — 79 ".....	4,368	4,029	6,421	5,461	8,254	6,904	10,888	8,233
80 — 84 ".....	3,206	3,215	5,020	4,906	6,232	6,130	8,407	7,063
85 years or over.....	2,555	2,998	3,846	4,540	5,336	6,319	7,135	8,505
Totals, All Ages.....	56,529	47,988	63,852	50,787	71,564	54,259	81,796	57,897
PERCENTAGES								
Under 1 year.....	20.6	18.1	13.8	12.7	11.7	11.6	9.3	9.5
1 — 4 years.....	5.0	5.3	2.9	3.1	2.0	2.1	1.4	1.6
5 — 9 ".....	2.2	2.0	1.4	1.3	1.0	0.9	0.9	0.7
10 — 14 ".....	1.5	1.7	1.2	1.1	0.6	0.5	0.7	0.5
15 — 19 ".....	2.3	2.4	1.8	1.6	1.0	0.8	1.1	0.6
20 — 24 ".....	2.7	3.0	2.1	2.0	1.4	1.0	1.1	0.6
25 — 29 ".....	2.5	2.9	2.1	2.3	1.4	1.2	1.1	0.7
30 — 34 ".....	2.3	3.0	1.9	2.3	1.5	1.4	1.2	0.9
35 — 39 ".....	2.7	3.3	2.3	2.4	1.8	1.9	1.8	1.5
40 — 44 ".....	3.3	3.1	2.7	2.9	2.5	2.3	2.2	2.0
45 — 49 ".....	4.1	3.6	3.8	3.6	3.4	3.0	3.7	2.9
50 — 54 ".....	5.0	4.2	5.3	4.4	4.9	3.8	4.9	3.7
55 — 59 ".....	5.4	4.7	6.9	5.6	6.6	5.2	6.7	4.8
60 — 64 ".....	6.3	5.9	8.3	6.9	9.0	7.2	8.4	6.6
65 — 69 ".....	7.5	7.0	9.5	8.7	11.2	9.4	10.2	8.9
70 — 74 ".....	8.6	8.5	10.2	9.8	12.2	11.9	13.0	12.2
75 — 79 ".....	7.7	8.4	10.1	10.7	11.5	12.7	13.3	14.2
80 — 84 ".....	5.7	6.7	7.9	9.7	8.7	11.3	10.3	13.2
85 years or over.....	4.5	6.2	6.0	8.9	7.5	11.6	8.7	14.7
Totals, All Ages.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹Excludes the Yukon and Northwest Territories.

13.—Distribution of Deaths, by Age and Sex, 1931, 1941, 1951 and 1960—concluded

Age Group	1931 ¹		1941 ¹		1951		1960	
	Male	Female	Male	Female	Male	Female	Male	Female
RATES PER 1,000 POPULATION								
Under 1 year.....	94.4 ^r	74.4 ^r	67.0 ^r	51.9 ^r	42.7 ^r	34.0 ^r	30.8	23.7
1 — 4 years.....	6.8 ^r	6.1 ^r	4.7 ^r	4.0 ^r	2.1 ^r	1.8 ^r	1.3	1.1
5 — 9 ".....	2.2	1.7	1.7	1.3	1.0	0.7	0.7	0.4
10 — 14 ".....	1.5	1.5	1.4	1.0	0.8	0.5	0.6	0.3
15 — 19 ".....	2.5	2.2	2.0	1.5	1.4	0.9	1.3	0.5
20 — 24 ".....	3.2	3.2	2.6	2.0	1.9	1.0	1.5	0.6
25 — 29 ".....	3.4	3.8	2.7	2.5	1.8	1.1	1.5	0.7
30 — 34 ".....	3.5	4.2	2.8	2.8	2.1	1.5	1.6	0.9
35 — 39 ".....	4.2	4.8	3.8	3.4	2.5	2.0	2.4	1.5
40 — 44 ".....	5.4	5.0	5.0	4.5	3.9	3.0	3.3	2.1
45 — 49 ".....	7.2	6.6	7.3	6.0	6.4	4.5	6.0	3.5
50 — 54 ".....	10.7	9.0	10.6	8.1	10.4	6.5	9.4	5.4
55 — 59 ".....	15.4	13.4	16.0	12.3	16.2	10.2	15.5	8.1
60 — 64 ".....	22.9	20.7	24.2	18.5	24.5	16.1	24.3	13.3
65 — 69 ".....	35.2	30.3	37.3	30.4	35.1	24.9	35.7	21.7
70 — 74 ".....	55.0	49.1	58.5	47.0	54.5	41.6	55.1	35.6
75 — 79 ".....	87.4	82.9	95.7	79.7	87.6	73.3	83.6	59.6
80 — 84 ".....	134.1	127.1	147.6	131.2	135.5	120.7	131.6	106.3
85 years or over.....	228.1	212.6	241.9	229.3	235.1	212.0	237.8	219.8
Totals, All Ages.....	10.5	9.6	10.8	9.1	10.1	7.8	9.1	6.6
Average age at death.....	43.1	44.8	51.5	53.4	56.3	58.7	59.5	62.7

¹ Excludes the Yukon and Northwest Territories.

Deaths in Urban Centres.—Table 2 on pp. 184-186 shows the number of deaths in 1960 for urban centres of 10,000 population or over. Without a knowledge of the age composition of each centre it is difficult to compare rates for various centres. The migration of young people from rural areas to some urban centres and of older people to other centres creates a favourable situation for a low or high rate as the case may be. However, despite differences in the age factor, some urban areas have very low death rates compared with other centres of the same size and with other areas in the same province.

Causes of Death.—Table 14 shows the deaths and death rates in Canada grouped according to the International Abbreviated List of 50 Causes. About 80 p.c. of the deaths are caused by diseases of the heart and arteries, cancer, accidents, diseases of early infancy, the respiratory diseases—tuberculosis, pneumonia and influenza—and nephritis.

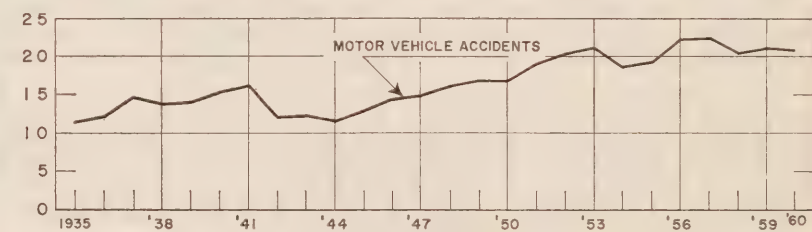
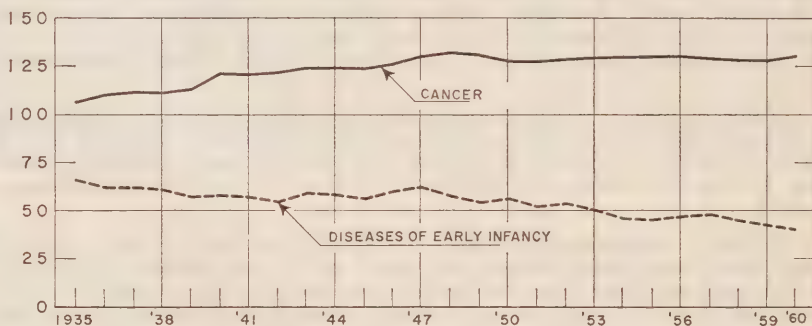
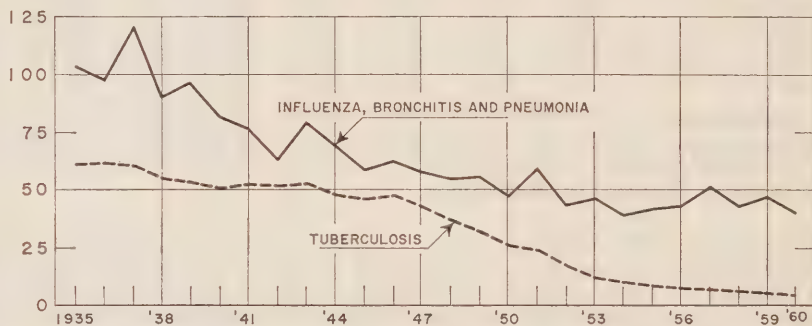
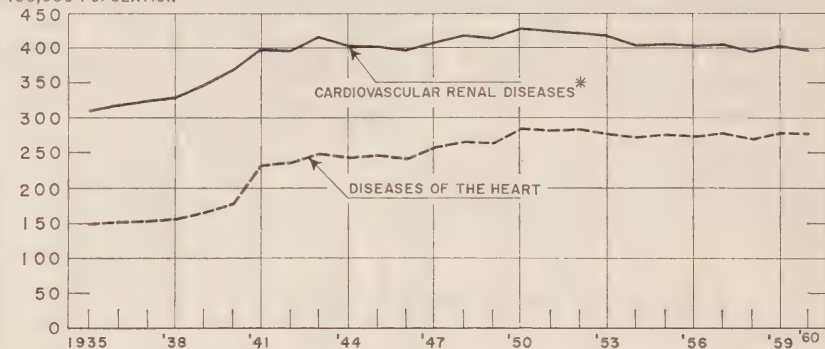
The rise in the average age at death has already been noted (p. 196). Deaths from causes that mainly affect children and young adults have declined. Diphtheria, for example, has been almost wiped out—in fact there were only seven deaths from diphtheria during 1960 and not a single one in 1959—and tuberculosis has been greatly reduced. On the other hand, the aging of the population has increased the proportion of deaths from certain causes that affect older people. Thus, cancer and diseases of the cardiovascular-renal systems now account for a substantially larger proportion of all deaths than formerly.

These trends indicate the remarkable success that has attended the attack by health authorities on the infective and contagious diseases which in the past have constituted such a great hazard in the early and young adult years of life. They have served similarly to emphasize the emergence of the chronic and degenerative conditions of later life as the targets toward which the public health programs of the future will be directed. In effect, Canada has shared the experience of most western nations in exchanging a high mortality in younger life for high morbidity in older age groups.

The Chart on p. 198 shows death rates for the major cause groups from 1935-60.

MAJOR CAUSES OF DEATH

RATE PER
100,000 POPULATION



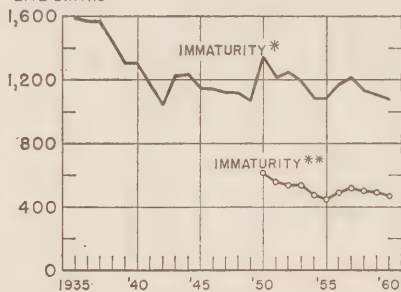
* INCLUDES: DISEASES OF HEART (INCL. RHEUMATIC FEVER) AND ARTERIES, INTRACRANIAL LESIONS, CHRONIC NEPHRITIS.

14.—Deaths and Rates per 100,000 Population, according to the International Abbreviated List of 50 Causes, 1959 and 1960

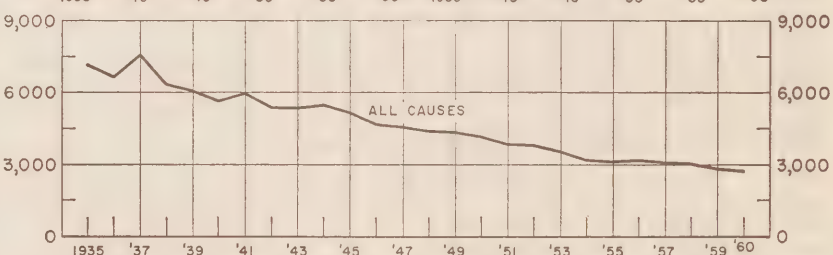
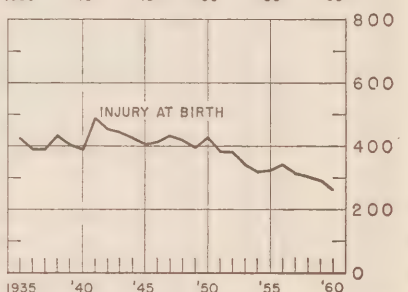
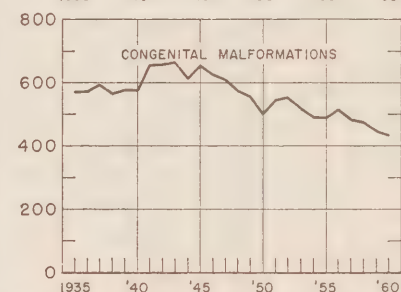
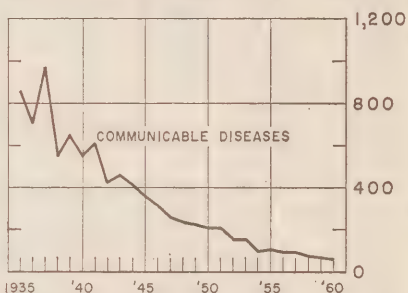
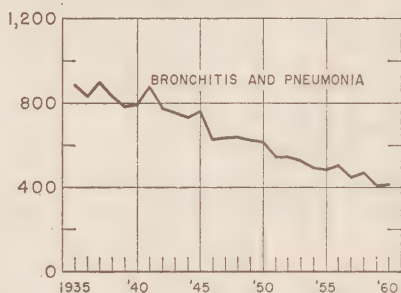
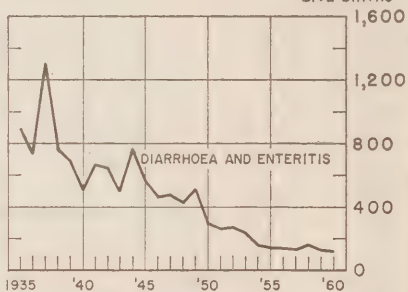
International List No.		Cause of Death	Numbers of Deaths		Rates per 100,000 Population	
Abbreviated List	Detailed List		1959	1960	1959	1960
B 1	001-008	Tuberculosis of respiratory system.....	834	725	4.8	4.1
B 2	010-019	Tuberculosis, other forms.....	125	98	0.7	0.6
B 3	020-029	Syphilis and its sequelæ.....	167	172	1.0	1.0
B 4	040	Typhoid fever.....	3	4	--	--
B 5	043	Cholera.....	—	—	—	—
B 6	045-048	Dysentery, all forms.....	20	32	0.1	0.2
B 7	050, 051	Scarlet fever and streptococcal sore throat..	26	22	0.1	0.1
B 8	055	Diphtheria.....	46	71	0.3	--
B 9	056	Whooping cough.....	52	63	0.3	0.4
B10	057	Meningococcal infections.....	52	63	0.3	0.4
B11	058	Plague.....	—	—	—	—
B12	080	Acute poliomyelitis.....	182	83	1.0	0.5
B13	084	Smallpox.....	—	—	—	—
B14	085	Measles.....	84	53	0.5	0.3
B15	100-108	Typhus and other rickettsial diseases.....	—	—	—	—
B16	110-117	Malaria.....	—	2	—	--
B17	030-039, 041, 042, 044, 049, 052-054, 059-074, 081-083, 086-096, 120-138	All other diseases classified as infective and parasitic.....	344	371	2.0	2.1
B18	140-205	Cancer (all malignant neoplasms).....	22,243	23,181	127.5	130.1
	(201)	Cancer.....	20,987	21,890	120.3	122.9
	(204)	Hodgkin's disease.....	254	270	1.5	1.5
		Leukæmia and aleukæmia.....	1,002	1,021	5.7	5.7
B19	210-239	Benign and unspecified neoplasms.....	333	301	1.9	1.7
B20	260	Diabetes mellitus.....	1,988	2,081	11.4	11.7
B21	290-293	Anæmias.....	338	320	1.9	1.8
B22	330-334	Vascular lesions affecting central nervous system.....	15,650	15,428	89.7	86.6
B23	340	Non-meningococcal meningitis.....	186	177	1.1	1.0
B24	400-402	Rheumatic fever.....	69	53	0.4	0.3
B25	410-416	Chronic rheumatic heart disease.....	1,437	1,394	8.2	7.8
B26	420-422	Arteriosclerotic and degenerative heart disease.....	40,970	42,439	234.9	238.2
B27	430-434	Other diseases of heart.....	2,150	2,129	12.3	12.0
B28	440-443	Hypertension with heart disease.....	3,687	3,222	21.1	18.1
B29	444-447	Hypertension without mention of heart.....	1,089	985	6.2	5.5
B30	480-483	Influenza.....	1,271	547	7.3	3.1
B31	490-493	Pneumonia.....	5,619	5,360	32.2	30.1
B32	500-502	Bronchitis.....	883	862	5.1	4.8
B33	540, 541	Ulcer of stomach and duodenum.....	857	921	4.9	5.2
B34	550-553	Appendicitis.....	176	187	1.0	1.0
B35	560, 561, 570	Intestinal obstruction and hernia.....	881	890	5.1	5.0
B36	543, 571, 572	Gastritis, duodenitis, enteritis and colitis except diarrhoea of the newborn.....	995	974	5.7	5.5
B37	581	Cirrhosis of liver.....	1,015	1,097	5.8	6.2
B38	590-594	Nephritis and nephrosis.....	1,695	1,558	9.7	8.7
B39	610	Hyperplasia of prostate.....	556	485	3.2	2.7
B40	640-652, 660, 670-689	Complications of pregnancy, childbirth and the puerperium.....	263	215	1.5	1.2
B41	750-759	Congenital malformations.....	2,767	2,696	15.9	15.1
B42	760-762	Birth injuries, postnatal asphyxia and atelectasis.....	2,936	2,787	16.8	15.6
B43	763-768	Infections of the newborn.....	623	582	3.6	3.3
B44	769-776	Other diseases peculiar to early infancy and immaturity (unqualified).....	3,894	3,716	22.3	20.9
B45	780-795	Senility without mention of psychosis, ill- defined and unknown causes.....	1,536	1,357	8.8	7.6
B46	Residual	All other diseases.....	11,019	11,040	63.2	62.0
BE47	E810-E835	Motor vehicle accidents.....	3,687	3,700	21.1	20.8
BE48	E800-E802	All other accidents.....	5,752	5,703	33.0	32.0
BE49	E840-E962					
BE49	E963, E970- E979	Suicide and self-inflicted injury.....	1,287	1,350	7.4	7.6
BE50	E964, E965	Homicide and operations of war.....	178	253	1.0	1.4
	E980-E999					
Totals, All Causes.....			139,913	139,693	802.2	784.2

LEADING CAUSES OF INFANT DEATHS

RATE PER 100,000
LIVE BIRTHS



RATE PER 100,000
LIVE BIRTHS



* DUE TO CHANGES IN CLASSIFICATION, NOT STRICTLY COMPARABLE OVER THE PERIOD; INCLUDES ALL DEATHS INVOLVING IMMATURITY EITHER AS THE UNDERLYING CAUSE OR AS A COMPLICATION.

** INCLUDES CATEGORIES 774-776, INTERNATIONAL STATISTICAL CLASSIFICATION (6th Rev.) WHERE IMMATURITY REPORTED ALONE AS UNDERLYING CAUSE.

Subsection 2.—Infant Mortality

Table 1, pp. 182-183, and Table 15 show the striking improvement that has taken place in the rate of infant mortality during the past twenty years. Although 69,766 of the 2,347,776 children born in the years 1956-60 died before reaching their first birthday, 150,925 others lived who *would have died* at the rate prevailing in the period 1926-30.

Table 15 shows that mortality among male infants is 25 to 30 p.c. higher than that among female infants for Canada as a whole, with wider variations for the individual provinces. For the country as a whole, in 1960, out of every 1,000 infant boys born alive, 31 died before reaching their first birthday, whereas out of every 1,000 infant girls 24 died within one year of their birth. As already pointed out, there are on the average 1,057 males born to every 1,000 females but, because male infant mortality is higher, the excess of males is reduced greatly by the end of the first year. For example, in 1958-60 there were 733,777 male children born compared with 694,167 female children, an excess of 39,610 or 5.7 p.c.; during the same period, 23,551 male children died during their first year compared with 17,299 female children so that the excess of males at one year of age was reduced to 33,358 or under 5 p.c.

As indicated in Tables 1, 2 and 15, infant mortality rates have varied from province to province and from one locality to another. One of the principal causes of these variations appears to have been the different proportions of births taking place in hospital or under proper prenatal and postnatal care (see also p. 188). Many other factors have also been important, particularly the supervision of water supplies, improved sanitation, the pasteurization of milk, the use of antibiotics, more and better paediatric services, improved obstetrical and hospital nursing services, improved home environment as a result of generally higher living standards and, in recent years, the lower age of mothers.

15.—Distribution of Infant Deaths, by Province and Sex, 1941-60

Province and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births	Province and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births		
	No.	No.				No.	No.				
Newfoundland.....	1951	361	276	60	48	Quebec—concl.	1958	2,981	2,171	41	31
	1957	363	241	47	32		1959	2,740	1,995	38	29
	1958	322	250	42	35		1960	2,406	1,753	34	26
	1959	345	231	45	32	Ontario.....	1941	1,910	1,384	51	40
	1960	312	233	40	32		1951	2,010	1,535	34	28
P. E. Island.....	1941	102	61	95	63		1957	2,177	1,599	28	22
	1951	60	30	44	23		1958	2,161	1,640	27	22
	1957	41	34	30	26		1959	2,110	1,663	26	22
	1958	61	23	46	18		1960	2,152	1,593	26	21
	1959	43	42	31	31	Manitoba.....	1941	447	341	59	47
	1960	55	33	40	24		1951	369	289	36	30
Nova Scotia.....	1941	545	363	77	53		1957	416	295	36	27
	1951	344	250	39	30		1958	371	285	33	27
	1957	298	228	30	24		1959	363	252	31	23
	1958	321	236	33	26		1960	406	292	34	26
	1959	332	259	34	28	Saskatchewan.....	1941	531	415	56	46
	1960	332	233	34	25		1951	353	323	32	30
New Brunswick.....	1941	515	421	83	69		1957	358	251	29	22
	1951	472	363	58	46		1958	349	267	29	23
	1957	333	256	37	32		1959	376	250	30	21
	1958	340	228	40	29		1960	381	256	31	22
	1959	315	221	37	28	Alberta.....	1941	506	373	57	44
	1960	280	208	33	26		1951	531	358	39	27
							1957	531	432	29	25
Quebec.....	1941	3,916	2,854	85	66		1958	548	384	29	22
	1951	3,335	2,486	54	42		1959	554	368	28	20
	1957	3,094	2,318	42	34		1960	601	421	30	22

15.—Distribution of Infant Deaths, by Province and Sex, 1941-60—concluded

Province or Territory and Year	Males	Females	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births	Territory and Year	Males	Females	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births
	No.	No.				No.	No.		
British Columbia...1941	316	236	41	32	Northwest Territories.....1951	43	27	136	81
1951	487	352	34	26	1957	66	63	151	136
1957	619	477	32	25	1958	86	57	169	131
1958	600	477	30	25	1959	72	56	140	118
1959	568	426	28	22	1960	89	69	157	131
1960	542	404	26	21					
Yukon Territory...1951	10	9	58	53	Canada.....1941 ¹	8,788	6,448	67	52
1957	17	10	66	42	1951	8,375	6,298	43	34
1958	12	8	45	36	1957	8,313	6,204	34	27
1959	9	5	34	18	1958	8,152	6,026	34	26
1960	16	10	57	39	1959	7,827	5,768	32	25
					1960	7,572	5,505	31	24

¹ Excludes Newfoundland and the Yukon and Northwest Territories.

Age at Death.—In 1960 the ages of the 13,077 infants who died within a year of birth were by no means evenly spread over the twelve-month span. In fact, 11,834 or 90 p.c. of the infants were less than six months old and 8,410 or 64 p.c. were less than one month old. There was a sharp drop to 1,063 in the second month with gradual reductions thereafter to the eleventh month. Of the 8,410 deaths during the first month, 7,307 occurred in the first week of life and no less than 4,467 took place in the first day.

Causes of Infant Deaths.—In 1960 more than two-thirds of the infant deaths were caused by immaturity, congenital malformations, pneumonia, postnatal asphyxia and atelectasis, and injury at birth. Immaturity was the underlying cause of 2,261 deaths, followed closely by congenital malformations with 2,076 fatalities. Pneumonia took the lives of 1,869 infants. Postnatal asphyxia accounted for 1,522 deaths and injury at birth for 1,265.

16.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1958-60

International List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1958	1959	1960	1958	1959	1960
001-019	Tuberculosis.....	27	18	7	6	4	1
020-029	Syphilis.....	4	1	—	1	—	—
045-048	Dysentery.....	12	9	23	3	2	5
050	Scarlet fever.....	1	2	1	—	—	—
052	Erysipelas.....	—	2	—	—	—	—
055	Diphtheria.....	—	—	—	—	—	—
056	Whooping cough.....	32	39	63	7	8	13
057	Meningococcal infections.....	28	25	35	6	5	7
085	Measles.....	35	28	27	7	6	6
140-239	Neoplasms.....	43	53	44	9	11	9
273	Diseases of thymus gland.....	32	29	23	7	6	5
325	Mental deficiency.....	48	65	52	10	14	11
340	Meningitis (non-meningococcal).....	112	79	89	24	16	19
391,392	Otitis media.....	92	89	86	20	19	18
470-475	Acute upper respiratory infections.....	56	59	57	12	12	12
480-483	Influenza.....	204	175	119	43	37	25
490-493	Pneumonia (4 weeks and over).....	1,557	1,389	1,415	331	290	296
500-502	Bronchitis.....	133	105	105	28	22	22
543	Gastritis and duodenitis.....	4	2	5	1	—	1
560-570	Hernia and intestinal obstruction.....	117	102	97	25	21	20
571	Gastro-enteritis and colitis.....	590	490	483	126	102	101
572	Chronic enteritis, and ulcerative colitis.....	5	1	5	1	—	1

16.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1958-60—concluded

Inter- national List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1958	1959	1960	1958	1959	1960
750-759	Congenital malformations.....	2,235	2,149	2,076	475	448	434
760, 761	Injury at birth.....	1,422	1,400	1,265	302	292	264
762	Postnatal asphyxia and atelectasis.....	1,508	1,535	1,522	321	320	318
763	Pneumonia of newborn (under 4 weeks).....	519	454	454	110	95	95
764	Diarrhoea of newborn (under 4 weeks).....	149	126	80	32	26	17
765-768	Other infections of the newborn.....	42	43	48	9	9	10
769	Antenatal toxæmia.....	141	121	91	30	25	19
770	Erythroblastosis.....	373	377	343	79	79	72
771	Hæmorrhagic disease of newborn.....	107	107	93	23	22	19
772	Nutritional maladjustment.....	76	71	48	16	15	10
773	Ill-defined diseases peculiar to early infancy.....	872	849	875	185	177	183
774-776	Immaturity.....	2,354	2,369	2,261	501	494	472
795	Ill-defined and unknown causes.....	150	145	96	32	30	20
E810-E825	Motor vehicle accidents.....	25	24	14	5	5	3
E900-E904	Accidental falls.....	14	10	17	3	2	4
E916	Accidents caused by fire.....	29	29	24	6	6	5
E921, E922	Inhalation and ingestion of food or other object.....	299	203	306	64	63	64
E924, E925	Accidental mechanical suffocation.....	152	159	145	32	33	30
	Other accidental and violent deaths.....	50	42	51	11	9	11
	Other specified causes.....	529	520	532	113	108	111
	Totals, All Causes.....	14,178	13,595	13,077	3,016	2,837	2,733

Infant Mortality in Urban Centres.—Because of the relatively small numbers of infant deaths in individual cities and towns, the rates for these centres usually vary widely from year to year. As is evident from Table 2, pp. 184-186, many cities and towns have maintained consistently low rates as compared with the national rate or the rate for the province in which they are situated.

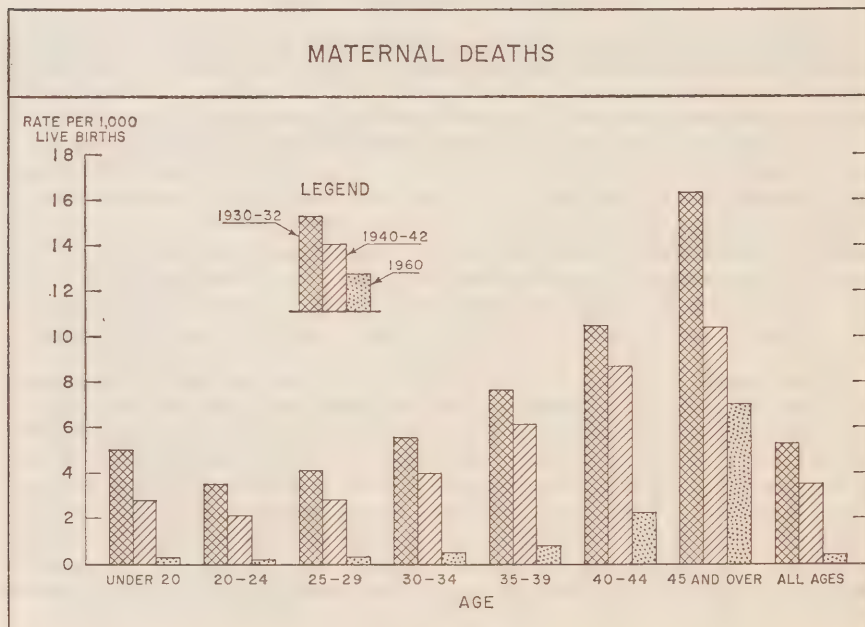
Subsection 3.—Maternal Mortality

As indicated in Table 1, pp. 182-183, the number of mothers who die in pregnancy and childbirth has been greatly reduced during the past two decades. Although the number of births has been much greater in recent years, the number of maternal deaths declined steadily from 1930 (when there were 1,215 deaths and a rate of almost 50 deaths for every 10,000 births delivered alive) to 255 in 1957; the slightly higher figure of 263 in both 1958 and 1959 was followed by an all-time low of 215 in 1960. Since 1945, the rate of maternal mortality has been less than 20 per 10,000 live births delivered and has been under 10 since 1951. In 1959 there was a slight decrease in the rate to 5.5 per 10,000 live births from 5.6 in 1958, and in 1960 the rate dropped below 5 for the first time to 4.5. Despite this improvement, Canada's maternal death rate is higher than the rates for several other countries such as England and Wales (3.9), the United States (3.6) and Sweden (2.4). Mortality among unmarried mothers is higher than among married mothers.

Age at Death.—Table 17 shows the distribution of maternal deaths by age group and average age at death; the latter is about four years higher than the average age of all mothers at the time of childbirth. Until recent years, the risk of mortality at childbirth was directly related to the age of the mother—in other words, for all mothers of over 20 years the rate rose with increasing age. While death rates for all age groups of mothers have been declining, there have been rather significant changes in the rates. Formerly, the rate for mothers in the age group 30-34 was twice or three times as high as the rate for the 20-24 group, but recently mortality rates for the four age groups of mothers under 35 years of age have not been far apart, although after age 35 a sharp rise occurs.

17.—Maternal Mortality and Rates per 10,000 Live Births, by Age Group, 1958-60
(Exclusive of Newfoundland)

Age Group	Maternal Deaths						Rates per 10,000 Live Births		
	1958		1959		1960		1958	1959	1960
	No.	p.c.	No.	p.c.	No.	p.c.			
Under 20 years.....	12	4.8	12	4.8	11	5.5	3.3	3.2	2.8
20 — 24 "	37	14.9	41	16.3	28	14.1	2.9	3.1	2.1
25 — 29 "	48	19.3	51	20.3	33	16.6	3.6	3.8	2.5
30 — 34 "	41	16.5	54	21.5	43	21.6	4.5	5.9	4.8
35 — 39 "	74	29.7	63	25.1	43	21.6	14.4	12.0	8.3
40 — 44 "	36	14.5	25	10.0	33	16.6	24.2	16.6	21.6
45 — 49 "	1	0.4	4	1.6	8	4.0	8.6	32.4	71.0
50 years or over.....	—	—	1	0.4	—	—	—	—	—
Totals, All Ages.....	249	100.0	251	100.0	199	100.0	5.5	5.4	4.3
Average age at death.....	32.4		31.8		32.8		...	...	...



Causes of Maternal Deaths.—Table 18 shows the main causes of maternal deaths during the years 1958-60. Until a decade or so ago, sepsis and toxæmia were by far the most important causes of death of mothers at childbirth. The danger of death from sepsis and other infection has been sharply reduced over the past 15 to 20 years through the use of antibiotics and probably also through increased use of medical services. On the other hand, the number of deaths caused by toxæmia arising during pregnancy and other complications of both pregnancy and delivery represent continuing problems. Hæmorrhage during pregnancy or delivery, which has been another important cause of mortality among mothers, has shown some reduction in recent years.

Of the 215 maternal deaths in 1960, 69 resulted from complication arising during pregnancy, more than half of these from some type of toxæmia; 83 resulted from a complication of delivery, 39 from a post-delivery complication and 24 from abortive delivery.

18.—Maternal Mortality and Rates per 100,000 Live Births, by Cause, 1958-60

Inter- national List No.	Cause of Death	Numbers of Deaths			Rates per 100,000 Live Births		
		1958	1959	1960	1958	1959	1960
	Complications of Pregnancy.....	93	82	69	20	17	14
640,641	Infections of the genito-urinary tract during pregnancy.....	1	2	1	--	--	--
642	Toxæmias of pregnancy.....	59	42	36	13	9	8
643	Placenta prævia noted before delivery.....	3	1	3	1	--	1
644	Other hæmorrhage of pregnancy.....	2	4	3	--	1	1
645	Ectopic pregnancy.....	6	9	7	1	2	1
646-649	Other complications of pregnancy.....	22	24	19	5	5	4
	Abortion.....	34	41	24	7	9	5
650,652	Abortion without mention of sepsis.....	11	17	6	2	4	1
651	Abortion with sepsis.....	23	24	18	5	5	4
	Complications of Delivery.....	96	95	83	20	20	17
660	Delivery (without complication).....	--	1	1	--	--	--
670	Delivery complicated by placenta prævia or antepartum hæmorrhage.....	29	25	14	6	5	3
671	Delivery complicated by retained placenta...	6	6	4	1	1	1
672	Delivery complicated by other postpartum hæmorrhage.....	24	24	20	5	5	4
673,674	Delivery complicated by abnormality of bony pelvis or malposition of foetus.....	3	7	5	1	1	1
675	Delivery complicated by prolonged labour of other origin.....	6	6	6	1	1	1
676,677	Delivery with laceration or other trauma.....	15	14	18	3	3	4
678	Delivery with other complications of childbirth.....	13	12	15	3	3	3
	Complications of the Puerperium.....	40	45	39	9	9	8
680	Puerperal urinary infection without other sepsis.....	1	--	--	--	--	--
681	Sepsis of childbirth and the puerperium.....	8	11	8	2	2	2
682-684	Puerperal phlebitis, thrombosis, pyrexia, pulmonary embolism.....	15	19	15	3	4	3
685,686	Puerperal eclampsia and toxæmia.....	7	5	5	1	1	1
687-689	Other.....	9	10	11	2	2	2
	Totals, All Puerperal Causes.....	263	263	215	56	55	45

Section 4.—Natural Increase*

The rate of natural increase in Canada (excess of births over deaths) prior to 1930 was 13 or more per 1,000 population. Partly as a result of the depression, the birth rate declined more than the death rate and the rate of natural increase fell to 9.7 in 1937. Higher birth rates during and after World War II and a gradually declining death rate caused the natural increase rate to rise steadily from 10.9 in 1939 to a record 20.3 in 1954. Since that time there has been a slight drop but the rate stood at 19.1 in 1960—probably the highest among the more industrially developed countries of the world.

* For international comparisons, see Section 7, pp. 214-215.

Table 19 shows the rates of natural increase in the provinces and for each sex separately. The high rates in the Prairie Provinces, especially Alberta, are partly accounted for by their relatively younger populations and consequent low death rates. High birth rates and declining death rates, particularly in Quebec, have given Newfoundland, Alberta, Quebec, Saskatchewan and New Brunswick the highest rates of natural increase in Canada in recent years (excluding the Yukon and Northwest Territories).

The rates of natural increase are higher for females than for males in all provinces because of the higher death rates for males. In the western provinces particularly, the ratio of males to females in the total population is higher than in other parts of Canada and this tends to lower the rate of natural increase. In Canada, a country with a fairly young population and where immigration has been on a large scale, an excess of males is to be expected but the higher rate of natural increase for females may gradually reduce this excess. The trend is toward an eventual excess of females in the total population—as there now is in most European countries—unless immigration again raises the male ratio or death rates among males are greatly reduced.

19.—Natural Increase and Rates per 1,000 Population, by Sex and Province, 1941-60

Province and Year	Excess of Births Over Deaths	Rate per 1,000 Popu- lation	Males		Females	
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females
Newfoundland.....Av. 1951-55	10,175	26.5	5,066	25.7	5,108	27.4
1956	11,483	27.6	5,722	26.8	5,761	28.6
1957	12,117	28.5	5,906	26.9	6,211	30.1
1958	11,693	26.7	5,952	26.3	5,741	27.2
1959	11,647	25.9	5,777	24.8	5,870	27.2
1960	12,158	26.5	6,130	25.8	6,028	27.3
Prince Edward Island.....Av. 1941-45	1,216	13.2	608	12.7	608	13.8
Av. 1946-50	1,947	20.7	972	20.0	975	21.3
Av. 1951-55	1,797	18.0	890	17.5	907	18.5
1956	1,724	17.4	765	15.1	959	19.7
1957	1,760	17.7	836	16.7	924	18.9
1958	1,632	16.3	776	15.3	856	17.3
1959	1,713	16.8	842	16.3	871	17.3
1960	1,773	17.2	805	15.4	968	19.1
Nova Scotia.....Av. 1941-45	8,820	14.7	4,343	14.1	4,477	15.2
Av. 1946-50	11,952	19.2	5,902	18.6	6,050	19.7
Av. 1951-55	12,444	18.7	6,126	18.2	6,318	19.3
1956	13,368	19.2	6,719	19.0	6,649	19.5
1957	13,339	19.0	6,423	18.0	6,916	20.1
1958	12,778	18.0	6,258	17.3	6,520	18.7
1959	12,667	17.7	6,067	16.6	6,600	18.8
1960	13,024	18.1	6,255	17.0	6,769	19.1
New Brunswick.....Av. 1941-45	7,987	17.3	3,973	16.8	4,014	17.8
Av. 1946-50	11,992	24.2	6,011	23.8	5,982	24.5
Av. 1951-55	11,920	22.4	5,859	21.9	6,062	22.9
1956	11,915	21.5	6,014	21.5	5,901	21.5
1957	12,425	22.0	6,250	21.9	6,175	22.1
1958	11,886	20.6	5,899	20.3	5,987	20.9
1959	11,739	19.9	5,799	19.5	5,940	20.3
1960	11,671	19.4	5,776	19.1	5,895	19.8
Quebec.....Av. 1941-45	63,633	18.5	32,012	18.5	31,621	18.4
Av. 1946-50	81,773	21.5	41,001	21.6	40,772	21.5
Av. 1951-55	94,254	22.0	46,897	21.9	47,357	22.1
1956	100,842	21.8	50,220	21.7	50,622	21.9
1957	105,473	22.2	52,320	21.9	53,153	22.4
1958	105,622	21.7	52,027	21.2	53,595	22.0
1959	105,993	21.2	52,416	20.9	53,577	21.5
1960	102,721	20.1	50,604	19.8	52,117	20.5

19. - Natural Increase and Rates per 1,000 Population, by Sex and Province, 1941-60—concluded

Province or Territory and Year	Excess of Births Over Deaths	Rate per 1,000 Popu- lation	Males		Females		
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females	
Ontario.....	Av. 1941-45	38,000	9.7	18,456	9.3	19,544	10.1
	Av. 1946-50	62,947	14.7	30,699	14.2	32,248	15.2
	Av. 1951-55	84,146	17.1	41,079	16.5	43,067	17.6
	1956	96,285	17.9	46,813	17.2	49,472	18.4
	1957	101,756	18.1	49,498	17.5	52,258	18.7
	1958	103,960	17.9	50,740	17.4	53,220	18.5
	1959	106,524	17.9	52,053	17.4	54,471	18.4
	1960	107,761	17.7	52,552	17.1	55,209	18.3
Manitoba.....	Av. 1941-45	9,198	12.7	4,349	11.6	4,849	13.9
	Av. 1946-50	12,627	16.9	6,012	15.7	6,615	18.1
	Av. 1951-55	14,546	18.0	6,866	16.7	7,680	19.3
	1956	14,887	17.5	6,929	16.0	7,958	19.1
	1957	14,994	17.4	7,014	16.0	7,980	18.9
	1958	14,552	16.7	6,851	15.5	7,701	18.0
	1959	15,380	17.4	7,298	16.2	8,082	18.6
	1960	15,766	17.5	7,498	16.4	8,268	18.7
Saskatchewan.....	Av. 1941-45	12,007	14.1	5,696	12.5	6,311	16.0
	Av. 1946-50	15,434	18.5	7,302	16.6	8,132	20.7
	Av. 1951-55	17,007	19.9	8,038	18.0	8,969	21.8
	1956	17,393	19.7	8,251	18.0	9,142	21.7
	1957	17,178	19.5	8,175	17.9	9,003	21.2
	1958	17,360	19.6	8,100	17.6	9,260	21.7
	1959	17,316	19.2	8,036	17.2	9,280	21.3
	1960	17,220	19.0	8,012	17.0	9,208	21.0
Alberta.....	Av. 1941-45	12,490	15.7	5,823	13.7	6,668	18.0
	Av. 1946-50	17,476	20.4	8,295	18.4	9,181	22.6
	Av. 1951-55	23,560	23.2	11,271	21.2	12,289	25.4
	1956	27,165	24.2	13,069	22.3	14,096	26.2
	1957	27,463	23.7	13,153	21.7	14,310	25.8
	1958	28,605	23.8	13,746	22.0	14,859	25.8
	1959	29,599	23.8	14,180	22.0	15,419	25.8
	1960	30,121	23.5	14,446	21.7	15,675	25.4
British Columbia.....	Av. 1941-45	8,337	9.3	3,241	6.9	5,096	12.0
	Av. 1946-50	14,867	13.8	6,368	11.4	8,499	16.4
	Av. 1951-55	19,114	15.3	8,474	13.2	10,640	17.5
	1956	22,826	16.3	10,183	14.1	12,643	18.6
	1957	25,033	16.9	11,145	14.5	13,888	19.3
	1958	25,836	16.7	11,689	14.7	14,147	18.9
	1959	25,635	16.4	11,661	14.4	13,974	18.3
	1960	25,420	15.8	11,562	14.0	13,858	17.8
Yukon Territory.....	Av. 1951-55	323	33.6	144	25.2	179	45.6
	1956	396	33.0	200	29.0	196	37.0
	1957	401	33.4	195	28.7	206	39.6
	1958	381	29.3	184	25.2	197	34.6
	1959	448	34.5	191	26.2	257	45.1
	1960	441	31.5	207	26.9	234	37.1
Northwest Territories.....	Av. 1951-55	382	23.0	196	20.8	186	25.9
	1956	494	26.0	236	21.1	258	31.9
	1957	575	30.3	258	23.5	317	39.6
	1958	612	30.6	308	26.8	304	35.8
	1959	701	33.3	342	28.5	359	39.9
	1960	782	35.5	386	30.9	396	41.7
Canada ¹	Av. 1941-45	161,688	13.7	78,501	13.0	83,187	14.5
	Av. 1946-50	234,999	18.1	114,560	17.4	120,439	18.9
	Av. 1951-55	289,668	19.5	140,906	18.7	148,762	20.3
	1956	318,778	19.8	155,121	19.0	163,657	20.6
	1957	332,514	20.1	161,173	19.2	171,341	21.0
	1958	334,917	19.7	162,530	18.8	172,387	20.5
	1959	339,362	19.5	164,662	18.6	174,700	20.3
	1960	338,858	19.1	164,233	18.2	174,625	19.9

¹ Figures for Newfoundland are included from 1949 and those for the Yukon and Northwest Territories from 1950.

Natural Increase in Urban Centres.—The classification of births and deaths by place of residence makes it possible to compile the natural increase in the population of urban centres; the figures are presented in Table 2, pp. 184-186.

Section 5.—Marriages and Divorces

Subsection 1.—Marriages*

In 1960 Canada's marriage rate was 7.3 per 1,000 population, the lowest in over twenty years. Provincial rates varied from 6.7 per 1,000 population for Prince Edward Island to 8.2 for Alberta. Table 20 shows the number of marriages and the marriage rates per 1,000 population for Canada and the provinces, and percentages of brides and bridegrooms, according to place of birth. For the country as a whole, over 81 p.c. of the grooms of 1960 were born in Canada and 67 p.c. in the province in which they were married; over 85 p.c. of the brides were born in Canada and over 73 p.c. in the province in which they were married. However, as would be expected because of heavy immigration of young persons in the postwar years, an increasing number of marriages are of persons born outside the country. For example, 18.7 p.c. of the grooms married in 1960 were born outside Canada compared with 11.7 p.c. in 1941; for brides the proportions were 15.0 p.c. and 8.4 p.c., respectively. However, there are wide variations in this pattern as between provinces; in the older Atlantic Provinces and Quebec there is a greater tendency than in the other provinces to marry native Canadians. In these areas both partners in a marriage are often born in the same province.

* For international comparisons, see Section 7, pp. 214-215.

20.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941-60

Province and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
	No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland.....1951	2,517	7.0	85.2	96.7	2.4	1.9	12.4	1.4
1956	3,073	7.4	84.3	96.4	3.3	1.6	12.4	2.0
1957	3,041	7.1	84.4	96.7	3.6	1.2	12.0	2.1
1958	3,047	7.0	87.8	97.7	2.1	1.0	10.2	1.3
1959	2,893	6.4	86.4	96.5	3.3	1.4	10.3	2.1
1960	3,104	6.8	80.2	96.4	4.3	1.9	9.5	1.7
Prince Edward Island.....1941	673	7.1	78.8	86.6	15.0	9.4	6.2	4.0
1951	553	5.9	82.3	91.1	12.9	6.0	4.8	2.9
1956	649	6.6	80.7	92.8	14.8	4.8	4.5	2.5
1957	627	6.3	81.7	93.6	13.7	4.5	4.6	1.9
1958	619	6.2	77.7	93.7	16.8	4.8	5.5	1.5
1959	639	6.3	84.4	92.0	11.9	5.9	3.8	2.0
1960	690	6.7	79.6	91.2	14.8	6.4	5.7	2.5
Nova Scotia.....1941	6,596	11.4	73.2	83.8	16.8	9.5	10.0	6.7
1951	5,094	7.9	78.2	86.7	15.9	9.0	6.0	4.3
1956	5,543	8.0	74.8	88.1	18.9	9.1	6.4	2.9
1957	5,206	7.4	75.7	87.3	18.8	8.9	5.5	3.8
1958	5,135	7.2	73.9	87.2	20.1	9.2	5.9	3.7
1959	5,310	7.4	74.5	87.2	19.2	9.4	6.3	3.4
1960	5,250	7.3	76.2	87.8	17.9	8.8	5.9	3.4
New Brunswick.....1941	4,941	10.8	78.5	84.4	13.3	9.7	8.2	5.9
1951	4,386	8.5	80.0	86.9	10.1	6.7	9.8	6.4
1956	4,591	8.3	75.9	86.8	12.2	6.3	11.9	6.9
1957	4,284	7.6	77.0	86.9	11.7	6.3	11.2	6.8
1958	4,170	7.2	74.9	85.8	12.9	7.2	12.2	7.1
1959	4,310	7.3	73.8	84.7	14.1	7.9	12.2	7.4
1960	4,430	7.4	74.4	85.9	14.8	8.1	10.8	6.0

20.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1941-60—concluded

Province or Territory and Year	Total Marriages	Rate per 1,000 Popu- lation	Born in Province Where Married		Born in Other Provinces		Born Outside Canada		
			Grooms	Brides	Grooms	Brides	Grooms	Brides	
			p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	
Quebec.....	1941	32,782	9.8	86.1	89.3	6.7	5.9	7.2	4.8
	1951	35,704	8.8	86.7	89.5	6.1	5.5	7.2	5.0
	1956	37,290	8.1	85.6	88.8	5.7	5.0	8.7	6.2
	1957	37,125	7.8	84.0	87.2	5.8	4.9	10.2	7.3
	1958	36,229	7.4	83.0	86.1	5.5	4.7	11.5	9.2
	1959	37,124	7.4	82.8	86.6	5.7	4.4	11.5	9.0
	1960	36,211	7.1	82.9	86.9	5.7	4.6	11.4	8.6
Ontario.....	1941	43,270	11.4	89.2	89.0	4.2	4.5	6.7	6.5
	1951	45,198	9.8	65.9	72.4	14.6	12.2	19.5	15.4
	1956	46,282	8.6	61.9	68.1	14.0	12.2	24.2	19.8
	1957	46,780	8.3	59.7	65.7	13.4	11.7	26.8	22.6
	1958	46,894	8.1	58.2	64.0	13.4	11.3	28.4	24.8
	1959	46,598	7.8	58.9	64.8	13.2	11.1	27.8	24.1
	1960	45,855	7.5	60.1	66.1	13.3	11.2	26.6	22.7
Manitoba.....	1941	8,305	11.4	63.0	73.7	17.4	15.0	19.6	11.4
	1951	7,366	9.5	67.9	75.1	15.4	13.3	16.8	11.6
	1956	6,709	7.9	64.7	74.9	19.7	14.4	15.6	10.7
	1957	6,594	7.7	65.3	75.4	18.8	12.8	15.9	11.8
	1958	6,430	7.4	65.1	74.9	18.2	12.9	16.7	12.2
	1959	6,661	7.5	65.1	75.1	17.8	12.7	17.0	12.3
	1960	6,606	7.3	66.4	74.9	17.9	13.4	15.7	11.8
Saskatchewan.....	1941	7,036	7.9	64.7	79.1	16.1	10.0	19.1	10.9
	1951	6,805	8.2	78.3	86.4	10.7	6.4	11.1	7.2
	1956	6,403	7.3	76.5	87.9	13.7	5.4	9.8	6.7
	1957	6,510	7.4	76.4	86.8	13.2	6.5	10.4	6.7
	1958	6,464	7.3	78.5	86.6	11.7	6.6	9.8	6.9
	1959	6,388	7.1	78.2	86.2	12.2	7.0	9.6	6.8
	1960	6,209	6.8	81.7	86.6	8.7	7.6	9.6	5.9
Alberta.....	1941	8,470	10.6	50.0	63.4	23.9	19.9	26.2	16.8
	1951	9,305	9.9	56.0	67.4	25.7	19.6	18.3	13.0
	1956	9,965	8.9	53.7	63.9	25.9	20.6	20.4	15.5
	1957	10,117	8.7	52.9	62.8	26.1	20.6	21.0	16.5
	1958	10,186	8.5	52.5	61.2	25.2	20.9	22.3	17.9
	1959	10,402	8.4	53.3	62.4	25.2	20.7	21.5	16.9
	1960	10,482	8.2	54.3	62.2	25.4	20.9	20.3	16.8
British Columbia.....	1941	9,769	11.9	35.9	43.5	35.6	37.1	28.5	19.4
	1951	11,272	9.7	35.5	41.6	43.1	43.0	21.3	15.5
	1956	11,950	8.5	33.7	41.2	40.9	38.9	25.4	19.9
	1957	12,620	8.5	32.3	39.2	39.3	37.5	28.4	23.3
	1958	12,094	7.8	32.6	39.9	36.7	34.6	30.7	25.4
	1959	11,910	7.6	33.3	42.3	36.9	33.5	29.8	24.2
	1960	11,203	7.0	34.8	43.5	37.0	33.3	28.2	23.2
Yukon Territory.....	1956	112	9.3	17.0	25.0	58.0	58.0	25.0	17.0
	1957	110	9.2	14.5	22.7	66.4	67.3	19.1	10.0
	1958	109	8.4	11.9	19.3	74.3	68.8	13.8	11.9
	1959	109	8.4	16.5	26.6	61.5	50.5	22.0	22.9
	1960	107	7.6	10.3	22.4	62.6	53.3	27.1	24.3
Northwest Territories.....	1956	146	7.7	65.1	73.3	19.9	19.2	15.1	7.5
	1957	162	8.5	64.2	72.8	26.5	19.8	9.3	7.4
	1958	148	7.4	66.9	70.3	21.6	20.3	11.5	9.5
	1959	130	6.2	57.7	66.9	24.6	24.6	17.7	8.5
	1960	191	8.7	64.9	74.9	28.8	19.4	6.3	5.8
Canada ¹	1941	121,842	10.6	76.8	81.5	11.4	10.1	11.7	8.4
	1951	128,230	9.2	70.5	76.5	15.1	12.8	14.5	10.6
	1956	132,713	8.3	67.8	74.7	15.2	12.4	17.0	12.9
	1957	133,186	8.0	66.3	72.8	15.0	12.2	18.7	14.9
	1958	131,525	7.7	65.4	71.8	14.5	11.8	20.1	16.5
	1959	132,474	7.6	65.9	72.6	14.5	11.5	19.6	15.9
	1960	130,338	7.3	67.0	73.4	14.3	11.6	18.7	15.0

¹ Newfoundland included from 1951 and the Yukon and Northwest Territories from 1956.

Age and Marital Status of Brides and Bridegrooms.—Table 21 shows that over 91 p.c. of the marriages in 1960 were between persons who had not been married previously; 4.9 p.c. of brides and 4.4 p.c. of bridegrooms had been widowed, and almost 4 p.c. of the marriages were of divorced persons. The average age at marriage of bachelors was just under 26 years and that of spinsters 23 years. The average age of widowers and widows at time of remarriage was slightly more than double that of bachelors and spinsters. Over 91 p.c. of the spinsters married in 1960 were under 30 years of age, 35 p.c. were under 20 years and 45 p.c. were between 20 and 25. Over 84 p.c. of the bachelors were under 30 years of age, 8 p.c. of them under 20 and over 50 p.c. from 20 to 24 years of age.

In recent years, couples have been marrying younger than they did a generation ago. Since 1940 the average age of men at the time of their first marriage has dropped from 28 years to less than 26; that of girls from 24 years, 5 months to 23 years exactly.

21.—Brides and Bridegrooms, by Age and Marital Status, 1960

Age Group	BRIDES							
	Numbers				Percentages			
	Spinsters	Widows	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20 years.....	41,228	13	38	41,279	34.7	0.2	0.7	31.7
20 — 24 ".....	52,612	183	621	54,416	45.1	2.9	12.1	41.8
25 — 29 ".....	14,297	341	1,188	15,826	12.0	5.3	23.2	12.1
30 — 34 ".....	5,010	489	1,036	6,535	4.2	7.7	20.2	5.0
35 — 39 ".....	2,192	657	934	3,783	1.8	10.3	18.3	2.9
40 — 44 ".....	1,069	771	580	2,420	0.9	12.1	11.3	1.9
45 — 49 ".....	674	850	403	1,927	0.6	12.3	7.9	1.5
50 — 54 ".....	396	825	201	1,422	0.3	12.9	3.9	1.1
55 — 59 ".....	191	719	68	978	0.2	11.3	1.3	0.8
60 — 64 ".....	90	602	25	727	0.1	9.4	0.7	0.6
65 years or over.....	72	934	13	1,019	0.1	14.6	0.3	0.8
Totals, Stated Ages...	118,831	6,384	5,117	130,332	100.0	100.0	100.0	100.0
Age not stated.....	5	1	—	6	...	...	...	...
Totals, All Ages.....	118,836	6,385	5,117	130,338	91.2	4.9	3.9	100.0
Average ages.....	23.0	49.4	34.7	24.7	...	...	...	...
	BRIDEGROOMS							
	Numbers				Percentages			
	Bachelors	Widowers	Divorced	Total	Bachelors	Widowers	Divorced	Total
Under 20 years.....	8,943	—	—	8,943	7.5	—	—	6.9
20 — 24 ".....	59,787	34	210	60,031	50.1	0.6	4.1	46.1
25 — 29 ".....	32,131	147	899	33,177	26.9	2.5	17.6	25.5
30 — 34 ".....	10,565	237	1,127	11,929	8.8	4.1	22.0	9.2
35 — 39 ".....	4,097	355	962	5,414	3.4	6.2	18.8	4.2
40 — 44 ".....	1,655	423	693	2,771	1.4	7.3	13.5	2.1
45 — 49 ".....	988	588	542	2,118	0.8	10.2	10.6	1.6
50 — 54 ".....	596	662	341	1,599	0.5	11.5	6.7	1.2
55 — 59 ".....	334	779	200	1,313	0.3	13.5	3.9	1.0
60 — 64 ".....	166	808	79	1,053	0.1	14.0	1.5	0.8
65 years or over.....	183	1,738	65	1,986	0.2	30.1	1.3	1.5
Totals, Stated Ages...	119,445	5,771	5,118	130,334	100.0	100.0	100.0	100.0
Age not stated.....	4	—	—	4	...	...	...	...
Totals, All Ages.....	119,449	5,771	5,118	130,338	91.6	4.4	3.9	100.0
Average ages.....	25.8	56.0	38.3	27.7	...	...	...	...

Religious Denominations of Brides and Bridegrooms.—The distribution of brides and bridegrooms by religious denominations is roughly the same as that for the population as a whole. Table 22 shows the very strong influence that religion has on marriage. About 71 p.c. of all marriages are between persons of the same religious denomination; in 1960 among those of Jewish faith it was about 92 p.c.; among Roman Catholics about 88 p.c.; United Church about 61 p.c.; and Eastern Orthodox about 66 p.c.

22.—Marriages by Religious Denominations of Contracting Parties, 1960

Denomination of Bridegroom	Denomination of Bride										Total Marriages	P.C. of Grooms
	Angli-can	Bap-tist	East-ern Orth-odox	Jew-ish	Luth-eran	Pres-by-terian	Roman Cath-olic ¹	United Church	Other Sects	Not Stated		
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Anglican.....	7,375	558	110	18	410	676	1,875	3,279	566	2	14,869	11.4
Baptist.....	546	2,043	22	1	92	154	455	887	311	1	4,512	3.5
Eastern Orthodox..	118	25	1,579	1	91	31	345	244	58	—	2,492	1.9
Jewish.....	23	3	5	1,313	5	10	64	28	19	—	1,470	1.1
Lutheran.....	551	143	54	6	2,534	174	956	940	332	1	5,691	4.4
Presbyterian.....	797	192	23	2	152	1,807	538	1,127	180	1	4,819	3.7
Roman Catholic ¹ ..	1,910	422	273	23	856	480	55,121	2,342	853	4	62,284	47.8
United Church.....	3,149	810	153	13	723	1,026	2,300	14,827	900	—	23,901	18.3
Other.....	742	307	63	22	324	218	1,068	1,194	6,328	1	10,277	7.9
Not stated.....	10	—	—	—	—	—	5	3	2	3	23	...
Totals.....	15,221	4,503	2,282	1,399	5,187	4,576	62,727	24,871	9,559	13	130,338	100.0
P.C. of brides.....	11.7	3.5	1.8	1.1	4.0	2.5	48.1	19.1	7.3	--	100.0	71.3 ²

¹ Includes Greek Catholic denomination.

² Percentage of marriages between contracting parties of the same religious denomination.

Subsection 2.—Dissolutions of Marriage (Divorces)

Before World War I the number of divorces granted in Canada was very small. There were fewer than 20 divorces each year from Confederation to 1900, 21 in 1903, 51 in 1909 and 60 in 1913. These numbers represent less than one per 1,000 of the yearly number of marriages. At the end of World War I the number of divorces showed a definite increase, advancing to a peak of 8,199 in 1947, then declining gradually to a postwar low of 5,270 in 1951. From 1952 to 1959 the number fluctuated between 5,650 and 6,688, and rose to 6,980 in 1960.

23.—Dissolutions of Marriage (Divorces), by Province, 1936-60

NOTE.—Figures for individual years from 1900 to 1950 are given in the 1956 Year Book, p. 230.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Av. 1936-40.....	..	1	50	44	56	734	194	116	259	570	2,024
" 1941-45.....	..	2	92	104	99	1,398	305	207	432	937	3,576
" 1946-50.....	1	21	185	245	303	2,839	500	383	724	1,676	6,877
1951.....	4	10	187	156	289	2,109	361	226	589	1,339	5,270
1952.....	3	9	188	200	309	2,218	338	223	630	1,532	5,650
1953.....	9	15	185	181	273	2,824	374	218	603	1,478	6,160
1954.....	8	8	249	117	370	2,469	371	250	610	1,471	5,923
1955.....	1	7	253	181	396	2,531	337	237	627	1,483	6,053
1956.....	5	1	230	215	351	2,478	314	221	685	1,502	6,002
1957.....	6	2	250	206	519	2,873	305	242	726	1,559	6,688
1958.....	7	1	220	150	311	2,776	292	281	743	1,498	6,279
1959.....	1	6	215	221	351	2,915 ²	301	276	836	1,420	6,543 ²
1960.....	6	10	221	178	481	2,965	361	213	951	1,592	6,980 ²

¹ Includes one in the Northwest Territories.

² Includes two in the Northwest Territories.

Section 6.—Canadian Life Tables

Four official series of life tables for Canada and the provinces and regions have been published to date, based on deaths in the three-year period around each of the Censuses of 1931, 1941, 1951 and 1956. In addition, tables have been computed for Canada as a whole for the years 1945 and 1947 based on estimated populations by sex and age and the deaths recorded in those years. The life table values for 1956 are given in abbreviated form in Table 24.

Life tables give some measure of the health and general conditions of survival of the population in a conventional, standard form. A hypothetical number (100,000) of births of each sex is assumed as a starting point. The life tables show how, on the basis of the mortality rates at each age in the given years, these 100,000 of each sex are reduced in number by death. For example, during the year 1956, of 100,000 males born, 3,472 died in their first year so that 96,528 survived to one year of age; 241 died in their second year so that 96,287 survived to two years of age, and so on. At 100 years of age only 87 of the original 100,000 would have survived. The probability of death at each age is the ratio between the number of deaths and the population at each age. Finally, the expectation of life is the average number of years which a person might expect to live if the mortality rates in the given years remained constant throughout his lifetime.

Mortality rates at all ages for males have been almost consistently higher than for females. Males have the highest risk of mortality as compared with females during their first year of life, from their late 'teens to early 30's and from age 50 to 65. For both boys and girls the risk of mortality drops rapidly during childhood and is lowest at about age 10, increases gradually to about age 40 for males and about 50 for females and then rises steeply with advancing age. As an illustration of the information available from study of the life tables, it may be observed that at the mortality rates given in the 1956 life table (see Table 24) about 13,000 males would have died before reaching age 50 as compared with about 8,700 females; only 56,466 of the original group of 100,000 males would have survived to age 70 as compared with 70,327 females.

24.—Canadian Life Table, 1956

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				YRS.				YRS.
At birth.....	100,000		.03472	67.61	100,000		.02767	72.92
1 year.....	96,528	3,472	.00250	69.04	97,233	2,767	.00216	73.99
2 years.....	96,287	241	.00144	68.21	97,023	210	.00120	73.15
3 ".....	96,148	139	.00115	67.31	96,907	116	.00093	72.24
4 ".....	96,037	111	.00095	66.38	96,817	90	.00070	71.31
5 ".....	95,946	91	.00083	65.45	96,749	68	.00058	70.35
10 ".....	95,611	335	.00057	60.67	96,522	227	.00037	65.51
15 ".....	95,297	314	.00099	55.86	96,330	192	.00047	60.64
20 ".....	94,699	598	.00160	51.19	96,074	256	.00060	55.80
25 ".....	93,897	802	.00169	46.61	95,762	312	.00075	50.97
30 ".....	93,116	781	.00172	41.98	95,366	396	.00094	46.17
35 ".....	92,272	844	.00202	37.34	94,868	498	.00127	41.40

24.—Canadian Life Table, 1956—concluded

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				yrs.				yrs.
40 years.....	91,217	1,055	.00288	32.74	94,157	711	.00194	36.69
45 "	89,620	1,597	.00472	28.28	93,052	1,105	.00312	32.09
50 "	87,015	2,605	.00794	24.04	91,321	1,731	.00475	27.65
55 "	82,853	4,162	.01282	20.12	88,746	2,575	.00744	23.38
60 "	76,601	6,252	.02037	16.54	84,791	3,955	.01191	19.34
65 "	67,737	8,864	.03057	13.36	78,849	5,942	.01864	15.60
70 "	56,466	11,271	.04425	10.51	70,327	8,522	.02955	12.17
75 "	43,106	13,360	.06776	7.98	58,224	12,103	.05137	9.15
80 "	28,117	14,989	.10611	5.89	41,683	16,541	.08717	6.75
85 "	14,252	13,865	.16187	4.27	23,817	17,866	.13640	4.97
90 "	4,944	9,308	.23784	3.07	9,930	13,887	.19889	3.67
95 "	984	3,960	.33684	2.18	2,716	7,214	.27446	2.74
100 "	87	897	.46169	1.52	427	2,289	.36294	2.05

By 1956, life expectancy *at birth* in Canada had reached a new high record of 67.6 years for males and 72.9 for females—comparable to the expectancy for other countries of the world with highly developed programs of medical and public health care. Once a child has passed its first year of life, however, its life expectancy increases appreciably. At one year of age a male child at present mortality risks may, on the average, expect to live an additional 69.0 years and a female 74.0 years, representing for an infant boy a gain of 1.4 years over his expectation at birth and for an infant girl a gain of 1.1 years. The expectation of life of a 15-year-old boy is 55.9 additional years; of a 15-year-old girl 60.6 years. At 25 years of age the expectation is about 46.6 years for men and almost 51 years for women and at age 70, 10.5 years for men and 12.2 years for women.

Table 25 summarizes the life expectancy figures extracted from the Canadian life tables for 1931, 1941, 1951 and 1956. According to these figures, life expectancy at birth for men increased 1.3 years from 1951 to 1956 compared with 3.4 years from 1941 to 1951 and 2.9 years from 1931 to 1941; females gained 2.1 years from 1951 to 1956 compared with 4.5 years and 4.2 years, respectively, in the preceding decades. Thus, from 1931 to 1956 a total of 7.6 years was added to male life expectancy and 10.8 years to female longevity.

The increases in life expectancy have been predominantly at the younger ages, particularly in infancy, and diminish with advanced age. For example, since 1931, 3.2 years have been added to the life expectancy of a five-year-old male, 2.1 years to a 20-year-old, nine months to a 40-year-old and three months to a 60-year-old as compared with 7.6 years for a newborn male. During this period, life expectancy for a five-year-old female gained 7.2 years, for a 20-year-old 6.0 years, for a 40-year-old 3.7 years and for a 60-year-old 2.2 years as compared with 10.8 years for a newborn female.

Longevity has improved for both sexes, though more so and at all ages for females, but there has been only slight improvement for males beyond middle life. Briefly, the

rapid decline in the death rate for infants of both sexes is continuing but the declines are slower with advancing age, so that relatively stationary death rates have been established from about 50 years onward for males and from about 80 years onward for females.

The fact that such a pattern exists is important in interpreting the results of these life tables. The arbitrary population base of 100,000 of each sex in the 1956 tables, for example, has been subjected to the mortality rates in effect in 1955-57, and the life expectancy computed *as if those death rates at each age were to prevail during their lifetime*. Actually the theoretical 200,000 infants born in 1955-57 will most probably have a pattern of survival and life expectancy quite different from that of the present life tables as they will spend most of their lives under conditions of public health and medical care which in all likelihood will be superior to those prevailing in 1955-57.

The improvement in life expectancy, particularly among children and adolescents, is caused mainly by the substantial reduction in recent years in mortality from infectious diseases; on the other hand, diseases associated with middle and old age are much less amenable to control. It is therefore unlikely that improvement in life expectancy in the future will be comparable to that of the past quarter-century. As approximately 11 p.c. of deaths in 1955-57 occurred among infants and an additional 75 p.c. among persons over age 50, any additional improvement must come as the result of further declines in mortality from conditions associated with childbirth and early infancy, further control of infectious diseases, prevention of accidents, and advances in combating diseases associated with middle and old age, such as cardiovascular-renal conditions and cancer.

25.—Expectation of Life, 1931, 1941, 1951 and 1956

Age	1931		1941		1951		1956	
	Male	Female	Male	Female	Male	Female	Male	Female
	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
At birth.....	60.00	62.10	62.96	66.30	66.33	70.83	67.61	72.92
1 year.....	64.69	65.71	66.14	68.73	68.33	72.33	69.04	73.99
2 years.....	64.46	65.42	65.62	68.16	67.56	71.55	68.21	72.15
3 ".....	63.84	64.75	64.88	67.38	66.68	70.66	67.31	72.24
4 ".....	63.11	63.99	64.07	66.56	65.79	69.74	66.38	71.31
5 ".....	62.30	63.17	63.22	65.69	64.86	68.80	65.45	70.35
10 ".....	57.96	58.72	58.70	61.08	60.15	64.02	60.67	65.51
15 ".....	53.41	54.15	54.06	56.36	55.39	59.19	55.86	60.64
20 ".....	49.05	49.76	49.57	51.76	50.76	54.41	51.19	55.80
25 ".....	44.83	45.54	45.18	47.26	46.20	49.67	46.61	50.97
30 ".....	40.55	41.38	40.73	42.81	41.60	44.94	41.98	46.17
35 ".....	36.23	37.19	36.26	38.37	37.00	40.24	37.34	41.40
40 ".....	31.98	33.02	31.87	33.99	32.45	35.63	32.74	36.69
45 ".....	27.79	28.87	27.60	29.67	28.05	31.14	28.28	32.09
50 ".....	23.72	24.79	23.49	25.46	23.88	26.80	24.04	27.65
55 ".....	19.88	20.84	19.64	21.42	20.02	22.61	20.12	23.38
60 ".....	16.29	17.15	16.06	17.62	16.49	18.64	16.54	19.34
65 ".....	12.98	13.72	12.81	14.08	13.31	14.97	13.36	15.60
70 ".....	10.06	10.63	9.94	10.93	10.41	11.62	10.51	12.17
75 ".....	7.57	7.98	7.48	8.19	7.89	8.73	7.98	9.15
80 ".....	5.61	5.92	5.54	6.03	5.84	6.38	5.89	6.75
85 ".....	4.10	4.38	4.05	4.35	4.27	4.67	4.27	4.97
90 ".....	2.97	3.24	2.93	3.13	3.10	3.24	3.07	3.67
95 ".....	2.14	2.40	2.09	2.26	2.24	2.27	2.18	2.74
100 ".....	1.53	1.77	1.46	1.64	1.60	1.59	1.52	2.05

Section 7.—International Comparisons of Vital Statistics

Table 26 gives a summary of Canada's national and provincial vital statistics rates along with those of several other countries. It will be noted that among the countries listed the low crude death rate in Canada is bettered by only three countries—Japan, the Union of Soviet Socialist Republics and the Netherlands—and that some of the provinces have lower rates than most other countries. The birth rate also helps to give Canada one of the fastest growing populations, currently ranking sixth among those listed. However, 11 countries reported lower rates of infant mortality.

26.—Principal Vital Statistics Rates of Selected Countries, 1960

Note.—Countries are ranked according to the highest rates for births, marriages and natural increase and according to the lowest for deaths.

Source: United Nations publications.

Country or Province	Births		Deaths		Infant Mortality		Neo-natal Mortality ¹		Maternal Mortality		Marriages		Natural Increase	
	Rate ²	Rank	Rate ²	Rank	Rate ³	Rank	Rate ³	Rank	Rate ³	Rank	Rate ²	Rank	Rate ²	Rank
Australia.....	22.4	14	8.6	4	20	4	15 ⁴	3	0.5 ⁴	4	7.3	14	13.8	12
Austria.....	17.6	23	12.6	21	38	14	25	11	1.0 ⁴	8	8.2	7	5.0	27
Belgium.....	26	12	9	22	31	11	20 ⁴	8	0.5 ⁴	4	7.1	16	3.9	28
Canada	26.9	6	7.8	3	27	8	18	6	0.4	3	7.3	14	19.1	6
Newfoundland.....	33.1	...	6.6	...	36	...	20	...	1.1	...	6.8	...	26.5	...
Prince Edward Island.....	26.5	...	9.3	...	22	...	21	...	...	...	6.7	...	17.2	...
Nova Scotia.....	26.5	...	8.4	...	30	...	19	...	0.2	...	7.3	...	18.1	...
New Brunswick.....	27.2	...	7.8	...	30	...	16	...	0.6	...	7.4	...	19.4	...
Quebec.....	27.0	...	6.9	...	30	...	19	...	0.6	...	7.1	...	20.1	...
Ontario.....	26.2	...	8.5	...	24	...	17	...	0.2	...	7.5	...	17.7	...
Manitoba.....	25.8	...	8.3	...	30	...	19	...	0.4	...	7.3	...	17.5	...
Saskatchewan.....	26.5	...	7.5	...	26	...	17	...	0.4	...	6.8	...	19.0	...
Alberta.....	30.4	...	6.9	...	24	...	15	...	0.2	...	8.2	...	23.5	...
British Columbia.....	25.0	...	9.2	...	24	...	15	...	0.5	...	7.0	...	15.8	...
Yukon Territory.....	38.4	...	6.9	...	48	...	13	...	...	...	7.6	...	31.5	...
Northwest Territories.....	49.7	...	14.2	...	144	...	50	...	...	...	8.7	...	35.5	...
Ceylon.....	36.9 ⁴	4	9.1 ⁴	8	65 ⁵	18	39 ⁶	16	3.9 ⁵	15	5.7 ⁴	21	27.8 ⁴	4
Chile.....	35.4	5	11.2	17	124 ⁴	24	34 ⁶	16	3.2 ⁵	14	7.1	16	24.2	5
Denmark.....	16.6	27	9.6	10	22	6	16 ⁵	4	0.4 ⁴	3	7.5	13	7.0	23
England and Wales.....	17.1	25	11.5	19	22	6	16	4	0.4	3	7.5	13	5.6	26
Finland.....	18.5	19	8.9	6	20	4	16 ⁴	4	0.7 ⁴	6	7.2	15	9.6	18
France.....	17.9	22	11.4	18	28	3	18	6	0.6 ⁴	5	7.0	17	6.5	24
Germany, Federal Republic of.....	17.7	22	11.4	18	34	12	24	10	1.1 ⁴	9	9.4	2	6.3	25
India ⁷	26.3	8	11.1	16	97 ⁵	23	...	...	...	...	...	...	15.2	10
Ireland.....	21.4	16	11.5	19	29	10	20	8	0.6	5	5.5	22	9.9	17
Italy.....	18.5	19	9.7	11	44	16	26 ⁵	12	1.1 ⁵	9	7.9	9	8.8	19
Japan.....	17.1	25	7.5	1	34 ⁴	12	22 ⁵	12	1.5 ⁴	12	9.3	3	9.6	18
Mexico.....	45.5	2	11.4	18	76 ⁴	19	28 ⁵	14	0.5 ⁴	4	6.5	19	34.1	2
Netherlands.....	20.8	17	7.6	2	17	2	1	1	0.5 ⁴	4	7.8	10	13.2	14
New Zealand.....	26.5	7	8.8	5	20	4	14 ⁴	2	0.4	3	8.0	8	17.7	7
Northern Ireland.....	22.5	13	10.8	15	27	8	20	8	0.4	3	7.0	17	11.7	16
Norway.....	17.4	24	9.0	7	19 ⁴	3	12 ⁵	1	0.4	3	6.6	18	8.4	20
Peru.....	39.2 ⁴	3	10.8 ⁴	15	85 ⁴	21	...	...	...	...	4.5 ⁴	23	28.4 ⁴	3
Portugal.....	23.4	11	10.4	14	77	20	27 ⁴	13	1.2 ⁴	10	7.6	12	13.0	15
Scotland.....	19.4	18	11.9	20	26	7	18	6	0.3	2	7.7	11	7.5	22
Spain.....	19.4	18	8.9	6	35	13	...	...	0.7 ⁵	6	7.8	10	13.0	15
Sweden.....	13.6	28	10.0	13	16	1	14	...	0.2 ⁴	1	6.8	18	3.6	29
Switzerland.....	21.0	21	9.8	12	21	5	17 ⁴	5	0.5 ⁵	4	7.8	10	8.0	21
Union of South Africa (Whites).....	17.8	9	8.6	4	28 ⁴	9	...	...	...	...	9.0 ⁴	4	16.4	9
Union of Soviet Socialist Republics.....	25.0 ⁴	9	7.6 ⁴	2	41 ⁴	15	...	...	...	...	12.2 ⁴	1	17.4 ⁴	8
United States.....	23.9	10	9.5	9	26	7	19	...	0.3	2	8.5	6	14.4	11
Venezuela.....	43.9	1	8.8 ⁴	5	58 ⁴	17	25 ⁴	11	1.2 ⁴	11	5.8 ⁴	20	28.1 ⁴	1
Yugoslavia.....	26.0	12	9.7	11	91 ⁴	22	37 ⁵	15	0.3 ⁵	2	8.9	5	13.3	13

¹ Under four weeks unless otherwise stated.² Per 1,000 population.³ Per 1,000 live births.⁴ 1959.⁵ 1958.⁶ 1957.⁷ Registration area only.

CHAPTER VI.—PUBLIC HEALTH, WELFARE AND SOCIAL SECURITY*

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Canada's growth in the past fifteen years has created many new problems in the planning of health and welfare services. Population has increased by one-half in this period. General prosperity, growing urbanization and industrialization, larger numbers of children and old persons in the population, and new concepts and knowledge in health and welfare matters have all contributed to needs for additional services and to a greater interdependence among the different health and welfare professions.

During 1961, attention was focused on the nation's health problems by the appointment of the Royal Commission on Health Services to inquire into the existing health facilities and the future need for health services for the people of Canada, and to recommend measures that would ensure the best possible health care for all Canadians. A series of public hearings was commenced, briefs from interested organizations were received, and a number of independent studies were initiated to explore various aspects of Canada's health needs and resources. Also in 1961, the Province of Saskatchewan attracted nationwide interest by enacting a Medical Care Insurance Act based on the recommendations of its Advisory Planning Committee on Medical Care (to come into force on July 1, 1962).

* Except where otherwise indicated, this Chapter was prepared by the Research and Statistics Division of the Department of National Health and Welfare, Ottawa.

Although the possibility of government participation in public medical care, beyond the special provision existing for certain indigent groups, received increasing public attention, insurance for medical care in Canada was still largely based on voluntary prepayment plans with approximately one-half the population enrolled. However, almost 98 p.c. of the insurable population was covered under the nation-wide hospital insurance and diagnostic services program operated by the provinces with federal financial support. During the year more than three million patients were admitted to general hospitals and almost 95 p.c. of the half-million births occurred in hospital.

Development in the sciences related to medicine, improved health services, and better nutritional and other standards are contributing to generally favourable health conditions—to a declining death rate and a longer expectation of life. Substantial progress in the fight against contagious diseases has not yet been paralleled by progress in solving the problems presented by chronic illness and the disabilities of older persons. Heart and hypertensive diseases, arthritis and rheumatism are among the leading causes of disability, although residual disability from stroke, Parkinson's disease, epilepsy and multiple sclerosis also accounts for large numbers of disabled persons. The death rate from lung cancer continues to increase and the disease is the subject of continuing investigation. Interest in mental illness has increased in recent years and new approaches to the solution of this major problem are being explored. Accidents, especially traffic accidents, constitute a steady and tragic problem, particularly as they affect children. Canada shares the world-wide concern for the hazards of radiation from medical and industrial causes as well as from fallout, and has devoted considerable attention to this problem.

Progress in the welfare field also continues to be substantial and efforts are concentrated on remaining problems, some of which are of considerable magnitude. Proposals for contributory old age insurance benefits and for improved general assistance programs are being explored. During 1961, the Federal Government and several provincial governments expressed interest in Ontario's proposed plan for the extension and portability of industrial pensions. In 1961, also, a five-million-dollar program was initiated by the Federal Government for the encouragement of fitness, recreation and amateur sport.

Rapid urbanization, large-scale immigration and increasing numbers of older persons in the population are among the forces requiring new approaches to Canada's welfare problems. At the same time, the growth of the industrial community has been associated with a marked improvement in the general standard of living. Higher real income has permitted better levels of nutrition and better housing in the urban industrial centres. During the past decade, many urban services have been extended to the rural population, so that many of the improvements in the national standard of living are being shared more equally by the urban and rural populations.

The increase that has taken place over the years in the provision of social welfare services has, of course, resulted in greatly increased government expenditures. The financial phase of developments in this field is dealt with in the following special article.

SOCIAL WELFARE EXPENDITURES IN CANADA*

One of the most significant socio-economic developments in postwar Canada has been the very substantial growth in social welfare expenditures. The more than \$3,300,000,000 spent under public welfare programs in the form of general welfare payments, social insurance benefits, social assistance and health and welfare services in the year ended Mar. 31, 1961 represented an almost elevenfold increase in such expenditures in about a decade and a half since World War II. Outlays of this magnitude by municipal, provincial and federal governments have had a profound effect on the nature and scope of public welfare programs across Canada and at the same time have had important implications for public finance and fiscal policy and for federal-provincial as well as provincial-municipal relations.

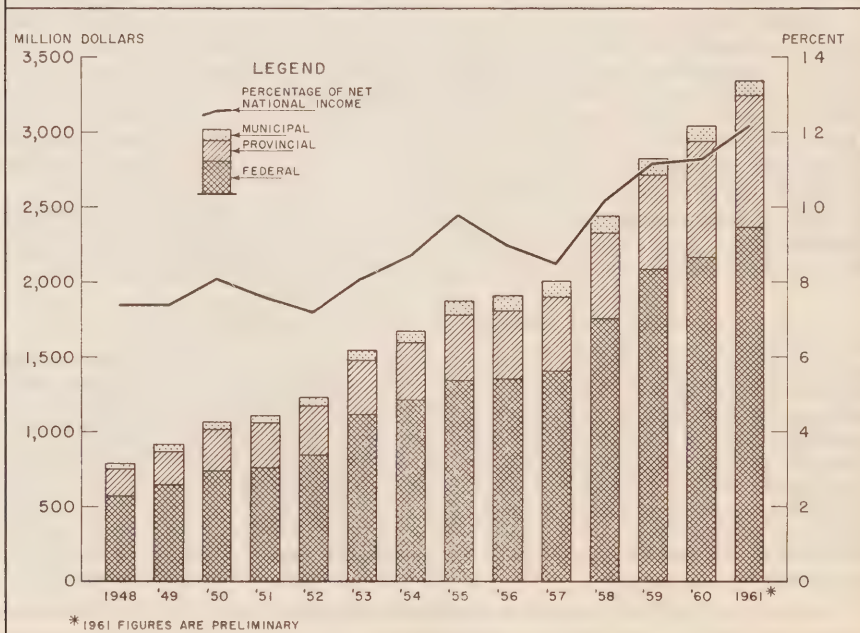
* Prepared by Dr. J. W. Willard, Deputy Minister of Welfare, Department of National Health and Welfare, Ottawa.

Any discussion of social welfare expenditures inevitably involves the question of what items should be included. In this review, a broad and commonly used interpretation of social welfare expenditures has been employed. Briefly stated, it covers outlays under municipal, provincial and federal government programs in the form of general welfare payments, social insurance benefits, social assistance payments, health services, welfare services and administrative costs involved in the operation of these measures.

As social welfare expenditures have increased over the years, the proportion financed by each of the three levels of government has changed. In 1874, a few years after Confederation, total outlays amounted to approximately \$1,400,000, of which about 50 p.c. was borne by the provincial governments, 36 p.c. by municipal governments and 14 p.c. by the Federal Government. By 1913, about four decades later, outlays on social welfare had increased to \$13,700,000 and the position of the municipalities and provinces had almost reversed, the former paying out 59.8 p.c. of total expenditures and the latter 31.4 p.c.; the Federal Government's share had dropped to 8.8 p.c. After World War I, the amount and proportion of federal expenditures increased dramatically and the position of the Federal Government as the heaviest spender in this field has remained unchanged since that time.

Social welfare expenditures by the three levels of government reached \$99,000,000 by 1926-27, which was about \$10.48 per capita. Of the total, federal expenditures accounted for 50.2 p.c., provincial expenditures for 28.9 p.c. and municipal outlays for 20.9 p.c. Throughout the depression years of the 1930's, expenditures on social welfare rose substantially. In 1939-40, the total amounted to \$317,200,000, or \$28.15 per capita, of which the federal share was 48.6 p.c. During the war years, however, such expenditures declined; in 1942-43, for example, government outlays dropped to \$230,000,000 and the per capita figure to \$19.73.

GOVERNMENT EXPENDITURES ON HEALTH AND SOCIAL WELFARE: AMOUNT AND PERCENTAGE OF NET NATIONAL INCOME, YEARS ENDED MAR. 31, 1948-61



The tremendous expansion of social welfare expenditures that followed World War II was accompanied by a further upward thrust in federal responsibility for such expenditures and by a considerable curtailment of municipal financing of welfare programs. By 1945-46 expenditures had increased to \$573,800,000, or \$47.52 per capita; a decade later, in 1955-56, they had been further augmented to \$1,907,300,000, or \$121.50 per capita; and in the next five years they continued to climb so that by 1960-61 total outlays of the three levels of government had reached \$3,347,000,000, or \$187.89 per capita.

The share of these expenditures carried through federal programs jumped to 71.6 p.c. in 1945-46, which represented a new plateau of federal participation. During the next decade and a half, the Federal Government's share ranged between 74.6 p.c. and 68.3 p.c., standing at 70.5 p.c. in 1960-61. Municipal expenditures on social welfare continued to decline relative to federal-provincial outlays. The municipal share dropped to 7.4 p.c. in 1945-46, or less than half that of the late 1930's and early 1940's, and this downward trend continued after the War so that in 1960-61 the municipal share of government expenditures on social welfare was only 3.0 p.c., the lowest in Canadian experience. The proportion of expenditures borne by the provinces was also much less in the postwar period than in any previous period since Confederation; it fluctuated between 18.9 p.c. in 1946-47 and 27.0 p.c. in 1950-51 and stood at 26.5 p.c. in 1960-61.

Federal Expenditures.—Expenditures by the Federal Government in the form of cash benefits under various social security programs as well as on the financing of public health and welfare services reached about \$2,538,000,000 for the year ended Mar. 31, 1962. General welfare payments in the form of family allowances for children under 16 years of age and old age security pensions for persons 70 years of age or over accounted for a very large share of this expenditure. Thus, the magnitude of the outlay involved is resulting in a redistribution of income of sizable proportions in favour of children and senior citizens. Federal expenditures under these two programs will reach \$1,273,000,000 in the fiscal year 1962-63.

The Federal Government has made provision for social assistance payments under a variety of programs. The first major venture in this area took place in 1927 when the Government introduced a sharing program with respect to the cost of old age assistance. During the 1930's, federal war veterans allowances were introduced and the federal-provincial program of old age pensions was extended to cover blind persons. In the mid-1950's, federal programs were implemented to share with the provinces the cost of allowances for the permanently and totally disabled and general assistance payments. Expenditures under these programs are small in comparison with those for general welfare payments; in 1961-62, war veterans allowances amounted to about \$75,000,000, and the federal share of provincial payments for old age assistance, allowances for the blind and disabled, and unemployment assistance amounted to \$141,000,000.

Canada has tended to employ the techniques of general welfare payments and of social assistance in the provision of income maintenance payments rather than to depend to any considerable extent on social insurance programs. Unemployment insurance, the principal federal program utilizing the insurance approach, was introduced early in World War II; insurance benefits under this program reached \$514,000,000 in 1960-61. The announcement in the Speech from the Throne in January 1962 of the intention of the Federal Government to introduce an old age, survivors and disability insurance program if agreement can be reached with the provinces on a suitable constitutional amendment ensuring constitutional authority for such an undertaking, suggests that in the years ahead the social insurance technique may be utilized as a part of Canada's social security system to a far greater extent than in the past.

The Federal Government is also financially involved in the provision of health and welfare services. Some of these are programs administered by the Federal Government, such as treatment and welfare services for special groups; in 1961-62, \$24,400,000 was expended under the Indian and Northern Health Services program and \$49,000,000 was expended on hospital accommodation and treatment services for veterans. Other measures

provide grants to the provinces to assist in the operation of provincial programs. For example, in 1961-62 federal contributions toward provincial hospital insurance amounted to \$283,700,000 and grants under the National Health Grant Program reached \$49,000,000.

It is of interest to note that while federal-provincial cost-sharing programs with respect to both social assistance payments and health and welfare services involve considerable sums, this type of expenditure represents less than 20 p.c. of total federal expenditures in the field of social welfare.

Provincial Expenditures.—In 1874, provincial social welfare expenditures amounted to \$657,000. Up to the outbreak of World War I, provincial government outlays for this purpose were still very modest, although the amount had increased to \$4,300,000 by 1913, and expenditures were principally for institutional care with a meagre contribution being made for health and welfare services and relief. In the largely rural economy of the first few decades after Confederation, most of the health and welfare needs which went beyond the resources of the individual were met through the family, relatives, friends and private charity. In discussing socio-economic development in the period 1874-96, the report of the Royal Commission on Dominion-Provincial Relations suggested that "... this restraint on provincial outlay during a long period of depression was made tolerable by the nature of the economy at the time. The relative self-sufficiency of the family and local communities enabled individuals to weather the depression somehow without reliance on governments. Those who were unable to make adjustments in this way were forced into the stream of migration to the south where they were absorbed by the rapid industrial developments and the expanding frontier of the United States."

During World War I there was considerable industrial growth in Canada and it was at this time that modern workmen's compensation schemes were adopted by several of the provinces. It was in this period also that the first mothers' allowances programs were introduced. During the 1920's these new income maintenance programs began to have an important impact on social welfare expenditures at the provincial level, which by 1926-27 had reached \$28,600,000. Nevertheless, the largest item of provincial expenditure continued to be hospital care.

Relief expenditures were the dominant factor during the 1930's. Prior to that decade the provinces had accepted relatively little responsibility in the matter of unemployment relief. Amounts paid out under the mothers' allowances programs during the 1930's were also well above those of the 1920's and hospital care expenditures continued to rise. New expenditures arising out of the matching feature in the federal grant-in-aid scheme for old age pensions introduced in 1927 became an increasingly important expenditure for the provinces and the addition of the federal-provincial program of pensions for the blind in 1937 opened up a new avenue of expenditure although the amounts involved were relatively small. By 1939-40, provincial social welfare expenditures had climbed to \$114,300,000. Provincial expenditures dropped somewhat during World War II but in the postwar period rose tremendously. A part of this rise was a by-product of the inflationary situation of the time but a considerable amount was also attributable to the extension of services and the introduction of more generous income maintenance payments. Hospital care expenditures increased much more than any other single item, in part the result of an increase in the amount of hospital care provided and of higher costs for such care. It also was the outcome of the establishment of hospital insurance programs in the various provinces throughout Canada, which brought a large share of expenditures for hospital care within the public sector. The entry of Newfoundland as the tenth province in Confederation in 1949 brought about an addition to provincial expenditures in Canada. Compensation payments and expenditures on related rehabilitation services under the workmen's compensation programs, and outlays on old age and blind pensions, mothers' allowances, and general assistance all rose steadily and new programs of allowances for the permanently and totally disabled were introduced. Finally, public health and welfare services were strengthened and extended during this period. From an expenditure of \$109,800,000 in 1944-45, provincial expenditures rose to an estimated \$1,000,900,000 in 1961-62.

Municipal Expenditures.—Municipal social welfare expenditures were modest in the early years after Confederation, amounting to about half a million dollars in 1874. They increased to \$8,200,000 in 1913 and reached higher levels in the 1920's, by 1926 standing at almost \$20,700,000.

During the depression period of the 1930's, municipal expenditures on relief rose sharply and social welfare costs climbed to \$57,100,000 by 1933. Toward the end of the 1930's and in the war years lower outlays reflected less need for relief expenditures. However, before the end of World War II annual expenditures began to grow again and the increases became more pronounced until in 1957-58 an expenditure level of \$112,600,000 was reached. Since then, there has been a much lower annual outlay and in the fiscal year 1960-61 municipal social welfare expenditures stood at \$98,600,000 which included \$52,400,000 for health services and \$46,200,000 for welfare payments and services. This lower level in recent years can be attributed to a number of factors. One of the most important was the introduction of the federal unemployment assistance program in 1956 and the later extension of that program. Much of the cost of general assistance formerly carried by municipalities in Canada has been shifted to the federal and provincial governments, although in some provinces a portion of general assistance payments is still the responsibility of local governments. Another factor was the implementation of the federal-provincial hospital insurance program which relieved the municipalities of much of the cost of hospital care for indigents.

Social Welfare Payments in Relation to Personal Income.—Social welfare income maintenance payments have cushioned permanent or temporary loss of personal income in a number of ways. Benefits from programs such as unemployment insurance and assistance, which are specifically related to cyclical changes in business conditions, provide a direct countercyclical effect because of the rise in the total of benefit payments under them during periods of economic downturn. While benefits under other programs are not so directly related to changes in the economic picture, they provide a continuing source of income to beneficiaries and in so doing afford a stabilizing influence during periods of decline in purchasing power. The effect of this influence is indicated by the fact that in 1961 income maintenance or transfer payments to individuals from governments amounted to \$2,400,000,000 or 8.6 p.c. of all personal income.

Income maintenance payments expressed as a percentage of personal income have greatly increased in the postwar years; in 1947-48 they represented 5.4 p.c. of personal income, in 1952-53 the percentage stood at 6.3 and in 1958-59 it reached 8.3.

The effect of social welfare payments varies in different parts of Canada. In the provinces with comparatively low average incomes these payments have a much greater impact than in others. For example, in the Atlantic Provinces where the per capita personal income was \$947 in 1958-59, 14.4 p.c. of it was derived from income maintenance payments; in Ontario, on the other hand, where per capita personal income was \$1,695, the proportion obtained from such payments was 6.7 p.c.

Social Welfare Expenditures in Relation to National Income.—Social welfare expenditures, expressed as a percentage of national income, are at an all-time high in Canada. Back in 1926-27 the percentage was only 2.4 but during the depression years, when welfare expenditures were relatively high and growth of national income adversely affected, the proportion reached as high as 9.7 p.c. Then, during World War II, when national income grew rapidly and government expenditures on social welfare declined in absolute amounts, outlays dropped to 2.8 p.c. of net national income. In the late 1940's the amounts spent by governments on social welfare programs increased rapidly, mainly because of increased outlays on family allowances, veterans pensions and allowances, and health services and, even though national income was also rising, the rate of increase in welfare expenditures was much greater and by 1949-50 these expenditures reached 8.1 p.c. of the net national income. The introduction of universal old age pension payments in 1952 and the several increases in the benefit rate to \$65 a month by 1962, the implementa-

tion of a nation-wide hospital insurance program, the growth of expenditures under the unemployment assistance program and higher unemployment insurance expenditures were among the many factors that advanced welfare expenditures to higher levels at a time when the national income was not showing comparable growth. Thus in 1957-58, social welfare expenditures reached 10.2 p.c. of net national income; in 1958-59 and 1959-60 the percentage was about 11.2 and in 1960-61 it reached 12.3.

For many years Canada has occupied a middle position between New Zealand and Britain on the one hand and Australia and the United States on the other when social welfare expenditures are expressed as a percentage of national income. For example, in 1949-50 the percentages were as follows: New Zealand 13.2, Britain 11.9, Canada 8.1, Australia 7.3, and United States 5.5. More recently, however, it is apparent that Canada has moved very close to the percentage in Britain and that the gap between Canada's position and that of Australia and the United States has been widened. In 1959-60, the percentages stood at 13.9 for New Zealand, 12.7 for Britain, 11.4 for Canada and 7.6 for the United States; while data for that year are not available for Australia, the percentage was 9.4 for that country in 1958-59.

Whether measured against previous Canadian experience or in terms of comparisons with these other countries, it is evident that the growth in government expenditures on social welfare during the postwar period and particularly during the past several years has been substantial indeed in relation to the rate of national income growth.

PART I.—PUBLIC HEALTH

Provincial governments bear the major responsibility for health services in Canada, with the municipality often assuming considerable authority over matters delegated to it by provincial legislation. The Federal Government has jurisdiction over a number of health matters of a national character and provides important financial assistance to provincial health and hospital services. All levels of government are aided and supported by a network of voluntary agencies working in different health fields.

Section 1.—Federal Health Activities

The Department of National Health and Welfare is the chief federal agency in health matters but important treatment programs are also administered by the Departments of Veterans Affairs and National Defence. The Dominion Bureau of Statistics is responsible for collection, analysis and publication of national health statistics, the Medical Research Council and the Defence Research Board administer medical research programs, and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare controls food and drugs, including narcotics, operates quarantine and immigration medical services, carries out international health obligations, and provides health services to Indians, Eskimos and other special groups. It advises on the visual eligibility of applicants for blindness allowances and co-operates with the provinces in the provision of surgical or remedial treatment for recipients of the allowances. Under the Public Works Health Act, supervision of health conditions is provided for persons employed on federal public works. Other programs of health or medical supervision and counselling are provided for the federal Civil Service, and also for the Department of Transport in all matters pertaining to the safety, health and comfort of aircrew and passengers.

The Department serves the provinces in an advisory and co-ordinating capacity and administers grants to provincial health and national voluntary agencies. Administration of federal aspects of the Hospital Insurance and National Health Grant Programs has become a major activity during the past decade.

Co-ordination with the provinces on health matters is facilitated by the Dominion Council of Health, the principal advisory agency to the Minister of National Health and Welfare. Its membership includes the Deputy Minister of National Health, who acts as chairman, the chief health officer of each province, and five appointees of the Governor in Council, representing the universities, labour, agriculture and women's organizations. The Council meets semi-annually. Federal-provincial technical advisory committees of the Council deal with specific aspects of public health.

Subsection 1.—National Health Grant Program

The National Health Grant Program, inaugurated in 1948, initially made ten federal grants available to the provinces for the development and strengthening of public health and hospital services. Nine were continuing grants: the Hospital Construction, Professional Training, General Public Health, Public Health Research, Mental Health, Tuberculosis Control, Cancer Control, Venereal Disease Control, and Crippled Children Grants. A Health Survey Grant lapsed in 1953 following completion of provincial health surveys. In 1953, after a review of the first five years of the Program, three new grants were established: Child and Maternal Health, Medical Rehabilitation, and Laboratory and Radiological Services.

In 1958, federal assistance under the Hospital Construction Grant was increased to \$2,000 per hospital bed (whether active treatment, chronic, mental or tuberculosis), double the previous grant for active treatment beds. In addition, funds were made available to meet up to one-third of the cost of approved alterations and renovations to existing facilities, with the federal contributions being at least matched by the provinces.

Beginning with the fiscal year 1960-61, a redistribution and merging of certain grants was effected to provide a more flexible measure of assistance and at the same time make larger amounts available for programs where additional aid was necessary. Adjustments were also required for services aided under certain grants, such as laboratory and radiological services and cancer control, now aided under the Hospital Insurance Program. The total allocation remained approximately the same but the number of separate grants was reduced to nine. The General Public Health Grant was increased by almost \$5,500,000 and projects under two previously separate grants—the Laboratory and Radiological Services Grant and the Venereal Disease Control Grant—were absorbed into it. The Medical Rehabilitation and Crippled Children Grants were merged and the combined allocation increased by more than \$1,000,000. The Mental Health Grant was increased by more than \$1,500,000, and the Professional Training and the Public Health Research Grants by about \$1,250,000 each. The Tuberculosis Control Grant was decreased by nearly \$750,000 and the Child and Maternal Health and Cancer Control Grants by lesser amounts. The grants for professional training and public health research, previously fixed amounts, were placed on a per capita basis, to increase with expansion of the population.

Up to Mar. 31, 1961, aid for hospital construction had been approved for 90,295 beds, 11,656 bassinets, 17,777 nurses' beds, 542 interns' beds, and space in community health centres and laboratories exceeding 14,558 bed-equivalents. Approximately 30,991 health workers had been trained or were undergoing special training and more than 7,000 health workers were employed with federal grant assistance.

The proportion of the total grants appropriation paid out to the provinces has increased steadily. Payments in 1960-61 totalled \$47,993,356, or 87 p.c. of the amount available; the average utilization during the thirteen years of the program was 75 p.c.

1.—Amounts Available and Amounts and Percentages Expended under the National Health Grant Program, by Grant, for the Thirteen-Year Period Ended Mar. 31, 1961, and for the Year Ended Mar. 31, 1961.

Grant	1948-61 Period			Year Ended Mar. 31, 1961		
	Amount Available ¹	Amount Expended	Percentage Expended	Amount Available ¹	Amount Expended	Percentage Expended
	\$	\$		\$	\$	
Crippled Children ²	6,207,728	4,431,677	71	—	—	—
Professional Training.....	7,923,144	7,728,874	98	1,744,200	1,290,476	74
Hospital Construction.....	153,582,532	133,810,963	87	17,367,320	17,595,202 ³	101
Venereal Disease Control ⁴	5,968,336	5,146,209	86	—	—	—
Mental Health.....	83,016,274	65,434,213	79	8,765,391	8,140,853	93
Tuberculosis Control.....	52,044,862	48,405,508	93	3,500,000	3,376,295	96
Public Health Research.....	6,871,248	5,769,825	84	1,744,200	1,466,516	84
Health Surveys ⁵	645,180	540,960	84	—	—	—
General Public Health.....	98,514,201	68,027,416	69	13,953,600	10,521,187	75
Cancer Control.....	46,565,553	32,090,624	69	3,500,000	3,020,448	86
Laboratory and Radiological Services ⁶	47,404,300	14,450,881	30	—	—	—
Medical Rehabilitation ⁷	6,500,000	3,016,750	46	—	—	—
Child and Maternal Health ⁸	13,250,000	8,808,718	66	1,750,000	1,423,176	81
Medical Rehabilitation and Crippled Children ⁹	2,625,000	1,159,203	44	2,625,000	1,159,203	44
Totals.....	531,118,458	398,821,821	75	54,949,711	47,993,356	87

¹ As set out in the General Health Grant Rules.
² Expenditure exceeds 100 p.c. of amount available through revote of funds unused in previous years.

⁴ Absorbed into General Public Health Grant, Apr. 1, 1960.

⁵ Absorbed into General Health Grant, Apr. 1, 1960.

⁶ Introduced in 1953.

⁷ Introduced in 1953 and merged with Crippled Children

⁸ Introduced in 1953.

⁹ Amounts for 1960-61 only; see footnotes ² and ⁷.

Subsection 2.—Hospital Insurance

The federal-provincial hospital insurance program, established in all provinces and both territories, covers nearly 98 p.c. of the insurable population of Canada. The system of federal grants-in-aid to the provinces to help meet the cost of specified hospital services is set out under the federal Hospital Insurance and Diagnostic Services Act of 1957. The methods of financing and administering the provincial plans, as well as the types of service offered above the minimum stipulated in the Act, rest with the provinces.

The range of in-patient benefits provided under the Act includes standard ward accommodation and meals, nursing service, drugs and biologicals, surgical supplies, the use of operating and case room, X-ray and laboratory procedures together with necessary medical interpretations, and the use of radiotherapy and physiotherapy facilities where available. The same benefits for out-patients, although authorized for assistance under the federal legislation, are not mandatory in provincial plans. A few provinces provide various insured services to out-patients, but the majority thus far restrict out-patient benefits to emergency care following an accident.

Federal legislation covers only services provided by active treatment, chronic and convalescent hospitals. Tuberculosis and mental hospitals are excluded from the federal-provincial plan as are institutions providing custodial care, although some provinces cover tuberculosis and mental services under their provincial programs.

There is considerable variation between provinces in the administration and financing of programs. General revenues, provincial sales tax and personal premiums are utilized in different provinces. The Federal Government pays each province 25 p.c. of the per

capita cost of in-patient services in Canada as a whole, together with 25 p.c. of the per capita cost of in-patient services in the province multiplied by the average for the year of the number of insured persons in the province. On a national basis, the federal contribution amounts to about 50 p.c. of shareable costs. However, for individual provinces the proportion of shareable costs met by the Federal Government varies, with a higher proportion of the cost of low-cost programs being met than of high-cost programs. Federal payments to the provinces under the program from July 1, 1958 to Mar. 31, 1961, as shown in Table 2, totalled nearly \$395,000,000.

2.—Federal Payments to Participating Provinces under the Hospital Insurance and Diagnostic Services Act, July 1, 1958-Mar. 31, 1961

Province or Territory	July 1-Dec. 31, 1958	Calendar Year 1959	Calendar Year 1960	Jan. 1-Mar. 31, 1961
	Contributions	Advances ¹	Advances ²	Advances ²
	\$	\$	\$	\$
Newfoundland.....	1,990,135	4,364,735	4,993,524	1,312,119
Prince Edward Island.....	—	206,787	1,072,409	178,949
Nova Scotia.....	—	7,472,187	9,284,357	2,574,167
New Brunswick.....	—	2,979,727	7,324,198	2,185,862
Quebec.....	—	—	—	13,936,741
Ontario.....	—	66,276,710	80,860,904	22,379,704
Manitoba.....	4,779,866	10,900,816	12,599,069	3,242,166
Saskatchewan.....	5,775,876	12,826,895	14,087,668	3,571,847
Alberta.....	6,494,722	14,362,663	16,378,050	4,143,466
British Columbia.....	8,609,463	19,136,630	21,955,550	5,981,927
Yukon Territory.....	—	—	112,206	56,478
Northwest Territories.....	—	—	180,126	81,724
Totals.....	27,650,062	138,527,150	168,848,061	59,645,150
Cumulative Total, July 1, 1958-Mar. 31, 1961.....				394,670,423

¹ A holdback of \$10,799,716 was payable during the year ended Mar. 31, 1962.
not available.

² Amount of holdback

The statistical and financial data appearing in Tables 3 to 7 pertain either to hospitals in the provinces participating during the whole calendar year or (where noted) to hospitals in provinces participating by the end of 1959. It should also be noted that the tables refer to hospitals listed in the hospital insurance agreements. Hospitals participating in hospital insurance programs are designated as "budget review hospitals", which comprise the bulk of hospitals listed in the agreements, and contract hospitals, which are defined in the hospital insurance regulations as private or industrial hospitals with which a province has contracted for the provision of insured services. Federal hospitals, also listed in the agreements, are included in Tables 3 and 4. Budget review hospitals include general hospitals designed for acute or short-term care, special hospitals and chronic hospitals.

On Dec. 31, 1959, nine provinces were participating in the hospital insurance program. The 920 hospitals of all categories reporting showed a total of 81,135 beds and cribs set up at the end of 1959, a rate of 6.5 beds per thousand population; provincial rates ranged from 4.0 in Newfoundland to 8.3 in Saskatchewan. The volume of hospital days per thousand population also varied considerably from province to province; the rate for the seven provinces participating in the hospital insurance program during the whole of the calendar year 1959 was 1,986.6 days, a rate considerably below the averages in Saskatchewan and Alberta but well above the averages in Newfoundland and Nova Scotia. In these seven provinces, 87.1 p.c. of all days of care in hospital were insured days in 1959.

3.—Number of Beds and Cribs in Hospitals Listed in Hospital Insurance Agreements, with Rate per 1,000 Population, by Province, as at Dec. 31, 1959

Province	No. of Hospitals Reporting	Beds and Cribs	
		Number	Rate ¹
Newfoundland.....	40	1,811	4.0
Prince Edward Island.....	9	643	6.2
Nova Scotia.....	48	3,991	5.6
New Brunswick.....	38	3,431	5.8
Ontario.....	304	37,690	6.2
Manitoba.....	90	6,193	6.9
Saskatchewan.....	165	7,540	8.3
Alberta.....	118	9,828	7.8
British Columbia.....	108	10,008	6.3
Totals, Nine Provinces.....	920	81,135	6.5

¹ Per 1,000 population; based on population estimated as at Jan. 1, 1960.

4.—Total Patient-Days and Insured Patient-Days in Hospitals Listed in Hospital Insurance Agreements, with Rates per 1,000 Total and Insured Population, by Province, 1959

Province	No. of Hospitals Reporting	Total Patient-Days during Year		Insured Patient-Days during Year		Insured as a Percentage of Total Patient-Days
		Number	Rate ¹	Number	Rate ²	
Newfoundland.....	40	565,034	1,258.4	528,852	1,180.5	93.4
Nova Scotia.....	48	1,125,804	1,572.4	999,955	1,436.7	88.8
Ontario.....	298 ³	11,218,173	1,884.8	9,686,803	1,749.8	86.3
Manitoba.....	86	1,691,418	1,897.6	1,451,929	1,661.7	85.8
Saskatchewan.....	158 ⁴	2,070,014	2,294.9	1,952,785	2,224.0	94.3
Alberta.....	117 ⁵	2,780,049	2,256.5	2,360,000	1,915.6	84.9
British Columbia.....	104 ⁶	2,838,829	1,913.3	2,434,785	1,564.8	85.8
Totals, Seven Provinces..	851	22,289,331	1,986.6	19,415,109	1,730.4	87.1

¹ Per 1,000 total population; based on population estimated as at June 1, 1959.

² Per 1,000 insured population; based on annual average number of insured persons under provincial plans, 1959.

for which data were not reported.

³ Excludes two hospitals for which data were not reported and six for which data were not appropriately segregated.

⁴ Excludes one hospital for which data were not reported and three for which data were not appropriately segregated.

⁵ Excludes one hospital for which data were not reported and three for which data were not appropriately segregated.

The volume of care provided by hospitals may be indicated by the average length of time each patient stays in hospital, as shown in Table 5. In this table, hospitals of the same type and size have been grouped together since it is reasonable to assume that the larger hospitals with more specialized staffs admit the more serious cases with longer average stay. With few exceptions, length of stay increases in proportion to bed-size of hospital. For all budget review general hospitals, with the exception of Newfoundland, the average length of stay varied from 9.1 days to 9.9 days. The average in Newfoundland (11.7) was affected by one general hospital in which the average stay was 26.9 days. Newfoundland has no separate chronic hospitals listed in the agreement. The average length of stay in chronic hospitals ranged from 20.8 days in Nova Scotia to 336.9 days in Alberta. In Ontario, where the highest number of budget review chronic hospitals are situated, the average was 246.3 days. This length of stay is characteristic of chronic hospitals generally.

Average length of stay, of course, gives no indication of variations or extremes in duration of stay. For this reason, the numbers of patients separated from budget review general hospitals in each participating province have been distributed, in Table 6, according to actual length of stay in days. In the seven participating provinces, 9.4 p.c. of the patients stayed only one day in hospital, almost 29 p.c. stayed three days or less, 34 p.c. stayed from four to seven days and the remaining 37 p.c. stayed eight days or longer, including 5 p.c. who stayed one month or more.

5.—Average Length of Adult and Child Stay in Budget Review General and Chronic Hospitals, by Bed-Size of Hospital and by Province, 1959

NOTE.—Length of stay is from date of admission to separation by discharge or death.

Province	No. of Hospitals Reporting	Bed-Size of Hospital									1,000 and Over	Total
		1-9	10-24	25-49	50-99	100-199	200-299	300-499	500-999			
BUDGET REVIEW GENERAL HOSPITALS												
Newfoundland.....	25	5.5	7.0	7.3	12.1	9.9	—	26.9	—	—	—	11.7
Nova Scotia ¹	44	7.3	5.8	7.8	9.3	10.2	9.6	—	11.9	—	—	9.4
Ontario ¹	182	5.8	7.3	8.9	9.8	8.9	8.9	9.9	11.3	13.6	—	9.9
Manitoba.....	73	8.0	7.0	7.2	8.2	9.4	8.0	9.4	11.2	—	—	8.9
Saskatchewan ²	148	7.0	7.4	7.8	8.3	10.5	13.5	12.6	14.8	—	—	9.9
Alberta.....	99	5.4	6.8	7.1	7.8	9.0	8.5	9.3	10.1	16.5	—	9.1
British Columbia.....	85	—	7.2	7.7	8.1	9.1	7.6	11.2	11.4	14.3	—	9.7
Totals, Seven Provinces.	656	7.0	7.1	7.8	8.8	9.2	9.2	10.5	11.4	14.3	—	9.7
BUDGET REVIEW CHRONIC HOSPITALS												
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia ¹	1	—	—	—	20.8	—	—	—	—	—	—	20.8
Ontario ¹	21	—	—	174.3	112.5	205.2	158.2	628.2	410.6	—	—	246.3
Manitoba.....	1	—	—	—	—	—	—	—	106.7	—	—	106.7
Saskatchewan ²	—	—	—	—	—	—	—	—	—	—	—	—
Alberta.....	9	—	—	149.1	405.6	—	464.3	—	—	—	—	336.9
British Columbia.....	—	—	—	—	—	—	—	—	—	—	—	—
Totals, Seven Provinces.	32	—	—	163.6	143.9	205.2	182.4	628.2	217.7	—	—	217.5

¹ Based on claims processed during period Jan. 1-Dec. 31, 1959.

² Based on figures provided by Provincial

Plan for most Saskatchewan hospitals.

6.—Number and Percentage Distribution of Adult and Child Separations from Budget Review General Hospitals, by Length of Stay and by Province, 1959

Province	No. of Hospitals Reporting	Length of Stay								Total
		1 Day	2 Days	3 Days	4-7 Days	8-10 Days	11-29 Days	30+ Days		
		NUMBER OF SEPARATIONS								
Newfoundland.....	25	2,391	3,259	3,859	13,082	4,521	8,997	2,747	38,856 ¹	
Nova Scotia ²	44	9,147	9,659	8,386	33,122	13,189	20,568	4,664	98,735	
Ontario ²	182	87,348	69,865	57,156	267,296	93,434	147,774	41,439	764,312	
Manitoba.....	73	11,421	19,605	12,960	50,738	17,805	27,372	6,457	146,356	
Saskatchewan ²	148	14,557	21,182	16,929	64,564	24,883	37,497	10,091	189,703	
Alberta.....	99	21,014	29,573	22,985	85,016	33,870	41,819	9,837	244,114	
British Columbia.....	85	16,438	33,267	21,412	80,775	33,603	47,164	13,074	245,733	
Totals.....	656	162,316	186,410	143,687	594,591	221,305	331,191	88,309	1,727,509	
PERCENTAGE DISTRIBUTION OF SEPARATIONS										
Newfoundland.....	25	6.2	8.4	9.9	33.6	11.6	23.1	7.1	100.0	
Nova Scotia ²	44	9.3	9.8	8.5	33.5	13.4	20.8	4.7	100.0	
Ontario ²	182	11.4	9.1	7.5	35.0	12.2	19.3	5.4	100.0	
Manitoba.....	73	7.8	13.4	8.8	34.7	12.2	18.7	4.4	100.0	
Saskatchewan ²	148	7.7	11.2	8.9	34.0	13.1	19.8	5.3	100.0	
Alberta.....	99	8.6	12.1	9.4	34.8	13.9	17.1	4.0	100.0	
British Columbia.....	85	6.7	13.5	8.7	32.9	13.7	19.2	5.3	100.0	
Totals.....	656	9.4	10.8	8.3	34.4	12.8	19.2	5.1	100.0	

¹ Excludes 55 separations unspecified as to length of stay.

² Based on claims processed during period

Jan. 1-Dec. 31, 1959.

³ For most Saskatchewan hospitals, the reported distribution of separations included only persons insured under the Provincial Plan.

The total cost of operating budget review hospitals in the seven participating provinces in 1959, including items of expense not covered under the hospital insurance program, was \$385,000,000. This total included \$246,700,000 for salaries and wages, \$31,500,000 for drugs and medical supplies, \$26,100,000 for food, \$53,800,000 for other departmental supplies and expenses, and \$26,900,000 for other expenses consisting mainly of interest payments and depreciation allowances. Table 7 gives various classifications of these expenditures.

The per patient-day cost of salaries and wages ranged from a low of \$9.36 for Newfoundland to a high of \$14.72 for British Columbia, the average for the seven provinces being \$12.67. A number of hospitals in Newfoundland are operated by the provincial government and the fact that certain services in these hospitals are purchased from the government, the costs for which are reported as "Other Supplies and Expense", probably contributed to the low figure for gross salaries and wages. There was surprisingly little variation among the provinces in cost of drugs and medical supplies. Since raw food cost includes food supplied to staff, in-patients and visitors, the differences in such costs per patient-day probably reflect variations in the proportion of hospital staff taking meals at the hospitals rather than variations in the cost of food per meal served. The main items comprising "Other Supplies and Expense" are fuel, electricity, water, insurance, replacements of bedding and linen, laundry supplies, housekeeping and cleaning supplies, repairs to buildings, repairs to furniture and equipment, maintenance of physical plant, printing, postage, stationery, office supplies and telephone. The high figure of \$5.58 for Newfoundland as compared with the average of \$2.76 for the seven provinces is attributable to the inclusion of raw food costs which are not available as a separate item, and the salary component of purchased services.

The total per capita cost of operating hospitals in the seven provinces was \$32.86, ranging from \$18.24 in Newfoundland to \$41.35 in Saskatchewan. The variations in total per capita expenses are more marked than in total per patient-day expenses because of the variation in the number of hospital days of care provided per thousand persons in each province.

The percentage distribution of expenses shows that about 64 p.c. of the operating costs of the hospitals was for wages and salaries, 8 p.c. for drugs and medical supplies, 7 p.c. for food, 14 p.c. for other departmental supplies and expenses and 7 p.c. for depreciation, interest and other departmental expenses. British Columbia hospitals spent almost 68 p.c. of their operating funds on salaries and wages as compared with 53 p.c. in Newfoundland and 55 p.c. in Nova Scotia.

7.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1959

Province	Departmental Expenditures					Other Revenue Fund Expense	Total Revenue Fund Expense
	Salaries and Wages	Drugs, Medical and Surgical Supplies	Raw Food	Other Supplies and Expense	Total Departmental Expense		
	AMOUNTS OF EXPENDITURES						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	4,339,449	858,868	1	2,588,578	7,786,895	403,789	8,190,684
Nova Scotia.....	10,303,980	1,697,267	1,857,157	3,460,849	17,319,253	1,282,141	18,601,394
Ontario.....	127,037,774	15,679,671	13,255,054	26,478,784	182,451,283	13,969,537	196,420,820
Manitoba.....	18,468,991	2,559,996	1,848,872 ²	4,106,195	26,984,054	2,024,202	29,008,256
Saskatchewan.....	24,104,136	2,768,998	2,396,209 ²	5,441,916	34,711,259	2,589,879	37,301,138
Alberta.....	27,045,024	3,676,165	3,481,281 ²	5,539,218	39,741,688	3,404,071	43,145,759
British Columbia.....	35,430,317	4,218,911	3,303,253	6,218,716	49,171,197	3,182,480	52,353,677
Totals, Seven Provinces.....	246,729,671	31,459,876	26,141,826	53,834,256	358,165,629	26,856,099	385,021,728

For footnotes, see end of table.

7.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1959—concluded

Province	Departmental Expenditures					Other Revenue Fund Expense	Total Revenue Fund Expense
	Salaries and Wages	Drugs, Medical and Surgical Supplies	Raw Food	Other Supplies and Expense	Total Departmental Expense		
	EXPENDITURES PER PATIENT-DAY ³						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	9.36	1.85	1	5.58	16.79	0.87	17.66
Nova Scotia.....	10.28	1.69	1.85	3.45	17.28	1.28	18.56
Ontario.....	13.12	1.62	1.37	2.73	18.84	1.44	20.29
Manitoba.....	11.87	1.64	1.19 ²	2.64	17.34	1.30	18.64
Saskatchewan.....	12.84	1.47	1.28 ²	2.90	18.48	1.38	19.86
Alberta.....	10.88	1.48	1.40 ²	2.23	15.99	1.37	17.36
British Columbia.....	14.72	1.75	1.37	2.58	20.43	1.32	21.75
Totals, Seven Provinces.....	12.67	1.61	1.34	2.76	18.39	1.38	19.77
	EXPENDITURES PER CAPITA ⁴						
	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	9.66	1.91	1	5.76	17.34	0.90	18.24
Nova Scotia.....	14.39	2.37	2.59	4.83	24.19	1.79	25.98
Ontario.....	21.34	2.63	2.23	4.45	30.65	2.35	33.00
Manitoba.....	20.87	2.89	2.09 ²	4.64	30.49	2.29	32.78
Saskatchewan.....	26.72	3.07	2.66 ²	6.03	38.48	2.87	41.35
Alberta.....	21.76	2.96	2.80 ²	4.46	31.97	2.74	34.71
British Columbia.....	22.57	2.69	2.10	3.96	31.32	2.03	33.35
Totals, Seven Provinces.....	21.06	2.68	2.23	4.59	30.57	2.29	32.86
	PERCENTAGE DISTRIBUTION OF EXPENDITURES						
Newfoundland.....	53.0	10.5	1	31.6	95.1	4.9	100.0
Nova Scotia.....	55.4	9.1	10.0	18.6	93.1	6.9	100.0
Ontario.....	64.7	8.0	6.7	13.5	92.9	7.1	100.0
Manitoba.....	63.7	8.8	6.4 ²	14.1	93.0	7.0	100.0
Saskatchewan.....	64.7	7.4	6.4 ²	14.6	93.1	6.9	100.0
Alberta.....	62.7	8.5	8.1 ²	12.8	92.1	7.9	100.0
British Columbia.....	67.7	8.0	6.3	11.9	93.9	6.1	100.0
Totals, Seven Provinces.....	64.1	8.2	6.7	14.0	93.0	7.0	100.0

¹ Included with "Other Supplies and Expense".² Excludes food costs for one hospital, for which that

item was not segregated.

³ Based on patient-days during year for adults and children.

population estimated as at June 1, 1959.

⁴ Based on

Subsection 3.—Food and Drug Control

The Food and Drugs Act is a federal statute with provisions applying to the manufacture, advertising, packaging and sale of foods, drugs, cosmetics and medical devices anywhere in Canada. Wide powers are authorized under this legislation to maintain the safety, purity and quality of food and drug products and to prevent misrepresentation in labelling and advertising. There are prohibitions, for example, on the sale of food or drugs that do not meet prescribed standards, are harmful, adulterated, dirty, improperly stored, or manufactured under unsanitary conditions. The Act also prohibits the advertising of any food, drug, cosmetic or medical device as a preventive or cure for a number of serious diseases and also lists drugs that may be sold only by prescription.

Standards of safety and purity are maintained through constant and widespread inspection and laboratory research. The inspection of food-manufacturing establishments plays a major role in the production of clean, wholesome foods. The sale for human consumption of meat from animals that were not healthy at the time of slaughter or that died from disease is expressly prohibited. With advances in modern food technology, methods of laboratory analysis must be developed to assure the safety of new types of ingredients and packaging materials. In recent years there has been an increase in the number of chemicals used in foods and the safety of the foods to which they are added becomes a matter for special research. Another subject of current importance is the bacteriology of frozen foods in guarding against contamination through improper storage of frozen foods already cooked. Since the Food and Drugs Act is intended for the protection of consumers, a section of the Food and Drug Directorate has been established to obtain consumer opinion and deal with individual consumer complaints as well as to provide sound information on which consumers can base opinions.

Drug standards are subject to continuous review and testing. Stringent licensing controls apply to drugs made for injection into the human body, such as vaccines, sera and antibiotics and, prior to licensing, the safety of the product is verified in federal laboratories. Detailed information on all new drugs must be reviewed by the Directorate before release for sale is permitted. The listing of drugs to be sold only on prescription is determined in co-operation with the medical and pharmaceutical associations. In general, any drug that can be classed as a sedative, hypnotic or tranquillizer goes automatically on the prescription list. To provide more effective control of certain drugs coming mainly under the class of barbiturates and commonly known as 'goof balls', an amendment to the Food and Drugs Act was enacted in 1961. This requires the licensing of persons dealing in these substances, as well as the keeping of special records, and limits the importation, manufacture, distribution and use of such drugs to medical purposes.

The Food and Drug Directorate also administers the Proprietary or Patent Medicine Act which is concerned with the registration before marketing and the annual licensing of secret-formula medicines sold under proprietary or trade names.

Regulation of the supply and use of narcotic drugs is carried out under the Narcotic Control Act. The legislation, as revised in 1961, authorizes more severe penalties for smuggling and trafficking in narcotic drugs, and introduces special provisions relating to the control and custody of narcotic addicts for purposes of treatment. The minimum sentence of six months for illegal possession is removed and the legislation now prescribes a penalty of seven years with no minimum for this offence; the maximum penalty for trafficking is increased from 14 years to life imprisonment; and illegal export and import is established as a special offence for which the minimum and maximum penalties are, respectively, seven years and life imprisonment. Persons convicted of offences under the Act who are found to be drug addicts may be sentenced for treatment, for an indeterminate period, in institutions that will operate under the penitentiaries system and the National Parole Board service.

Subsection 4.—Other Federal Health Services

Indian and Northern Health Services.—Responsibility for the medical care and general health of the Indian and Eskimo population rests with the Department of National Health and Welfare. Through the Directorate of Indian and Northern Health Services, the Department staffs and operates various facilities for a registered population of about 185,000 Indians and 11,500 Eskimos. Responsibility for the general welfare of Indians and Eskimos in the community is shared with the Indian Affairs Branch of the Department of Citizenship and Immigration and with the Department of Northern Affairs and National Resources.

Hospital care is provided for Indians and Eskimos through provincial and territorial hospital services plans; 23 hospitals, operated by the Department, provide part of the care required, in conjunction with non-departmental hospitals. In addition, a staff of

qualified doctors, nurses and dentists operates 30 clinics, 36 nursing stations and about 80 health centres for the 2,000 small Indian and Eskimo communities throughout the country. During 1960, in the Northwest Territories alone, 32,094 medical care visits were made, divided about equally between Indians, Eskimos and other groups in the community.

Where the Department's health services are not directly available, care is provided through private or community health agencies on a fee-for-service or per-diem basis. Special emphasis is placed on public health services through field surveys, immunization programs and health education, particularly in the areas of tuberculosis and prenatal and infant care.

Immigrants.—The Department of National Health and Welfare advises on the administration of sections of the Immigration Act dealing with health, and conducts in Canada and other countries the medical examination of applicants for immigration. It also provides care for immigrants who become ill en route to their destination or while awaiting employment. Further assistance in the provision of hospital and medical services is available to indigent immigrants during their first year in Canada, either from the Federal Government or from the province with federal sharing of costs.

Quarantine.—Under the Quarantine Act, all vessels, aircraft and other conveyances together with their crew members and passengers arriving in Canada from foreign countries are inspected by quarantine officers to detect and correct conditions that could lead to the entry and spread of quarantinable diseases in Canada. Fully organized quarantine stations are located at all major seaports and airports.

Under the provisions of the Leprosy Act, modern facilities for the diagnosis and treatment of leprosy are provided at Tracadie, N.B., for the small number of persons in Canada suffering from this disease.

Sick Mariners.—Under the authority of Part V of the Canada Shipping Act, the Department of National Health and Welfare provides prepaid health services for crew members of foreign-going ships arriving in Canada and Canadian coastal vessels in inter-provincial trade; crew members of Canadian fishing and government vessels may participate on an elective basis. Hospital care of crew members having residence in Canada is the responsibility of the provincial hospital insurance authority concerned.

Subsection 5.—Health Research and International Health

Health Research.*—Health research in Canada is carried on in universities, hospitals, research institutes and government departments. In the universities, relevant research is done by departments of basic medical sciences, medical and public health schools or faculties and by such departments as genetics and psychology as well as in special departments or institutes of research. Hospitals used for teaching medical students also carry on considerable research, as do some of the larger non-teaching hospitals and mental institutions.

The Department of National Health and Welfare, the Medical Research Council (established in November 1960 to take over the work formerly carried on by the National Research Council Medical Division), the Department of Veterans Affairs and the Defence Research Board support extensive programs of research. Other important research centres include the Connaught Medical Research Laboratories, the Banting Research Foundation, the Charles H. Best Institute, the Institute of Microbiology and Hygiene, the Allan Memorial Institute and the Montreal Neurological Institute. Some non-governmental or voluntary agencies concerned with health generally, or with specific diseases, encourage and support research by various means including financial assistance. Over-all expenditures on health research in Canada cannot be established exactly, but may reach \$7,000,000 or \$8,000,000 annually.

* See also Subsection 3 of Section 4 of that Part of the Education and Research Chapter relating to Scientific and Industrial Research.

International Health.—Canada actively assists and co-operates with the World Health Organization and the other specialized agencies of the United Nations concerned with health. Capital and technical assistance are provided to under-developed countries through the Colombo Plan and other bilateral aid programs. Health training in Canada is provided for a number of persons coming to Canada each year under the different technical co-operation schemes. (See pp. 137-139 and 142-143.)

During the year 1961, 155 trainees in a variety of health areas were in Canada under the External Aid Program and 22 additional applicants were being processed. Canadian experts in health legislation, biostatistics and occupational health undertook special assignments abroad and a six-member medical team commenced a three-to-five-year program in Malaya. By way of capital assistance, four cobalt beam therapy units were donated during 1961, making, in all, 10 such units that have been provided thus far under the Colombo Plan. The medical textbook program approached its conclusion; most of the 86 medical schools included each received its full quota of \$2,500 worth of basic medical texts.

To carry out Canada's obligations under the International Sanitary Conventions, the Department of National Health and Welfare maintains quarantine measures for ships and aircraft entering Canadian ports and provides accommodation and necessary medical care for persons arriving in Canada who require quarantine (see p. 231).

The Department is responsible for the enforcement of requirements governing the handling and shipping of shellfish under the International Shellfish Agreement between Canada and the United States and, at the request of the International Joint Commission, participates in studies connected with control of pollution of boundary waters between Canada and the United States as well as with problems caused by atmospheric pollution. Other international health responsibilities include the custody and distribution of biological, vitamin and hormone standards for the World Health Organization and certain duties in connection with the Commission on Narcotic Drugs of the United Nations.

Section 2.—Provincial and Local Health Services

Provincial and local health services may be grouped into several broad categories: general public health services, primarily of a preventive nature; services for specific diseases or disabilities combining prevention and treatment; services related to general medical and hospital care; and rehabilitation services for disabled persons.

General Public Health Services.—Provincial and local governments co-operate closely in providing community public health services. The autonomy of the provinces and their social, economic and geographic diversity make for some variety in legislative provisions, in financial arrangements, and in the detailed division of functions between provincial health departments and local and voluntary agencies. Each province, however, offers all or nearly all of a basic range of public health services which includes environmental health, occupational health, communicable disease control, maternal and child health, dental health, nutrition, health education, and public health laboratories.

Environmental Health.—The control of factors in the environment that are harmful to physical health is a rapidly expanding area of public health activity. For many years, much of the work in this field was related to inspection duties long associated with community health sanitation, such as maintenance of pure milk, water and food supplies, supervision of plumbing and sewage disposal systems, and provision of general sanitary conditions in public areas. Increasing industrialization, however, has imposed new responsibilities calling for new techniques in public health engineering and sanitary services. Air pollution, water pollution, and radiation are emerging as major environmental health problems, necessitating co-ordinated effort by governments and other agencies in research and in planning effective control measures.

Occupational Health.—Services designed to prevent accidents and occupational diseases and to maintain the health of employees are the common concern of provincial health departments, labour departments, workmen's compensation boards and industry management. Provincial agencies regulate working conditions and offer consulting and educational services to industry. All provinces have legislation (Factory Acts, Shop Acts, Mines Acts, Workmen's Compensation Acts) setting health safety standards for employment.

Communicable Disease Control.—There are separate divisions of epidemiology or communicable disease control in the six larger provinces; in the Atlantic Provinces these functions are handled by provincial medical health officers. Local health authorities undertake case-finding and diagnostic services in co-operation with public health laboratories, carry out epidemiological investigations and often participate in tuberculosis and venereal disease control measures.

Maternal and Child Health.—Services for mothers and children are largely decentralized through local units and departments, but most provinces maintain separate divisions or employ consultants to promote better standards. Public health nurses have a prominent place in this work, which may include prenatal education, provision for delivery and care of the newborn in remote areas, home visits, child health clinics and school health services.

Dental Health.—All provincial health departments have dental health divisions which administer programs, varying under local conditions but directed almost entirely to health education and the care of children. Training of dentists and dental hygienists in public health, the operation of children's preventive and treatment clinics, and health education are being undertaken in all provinces. Water fluoridation projects involving an over-all total of more than a million people are in operation in seven provinces. Three provinces—Alberta, Manitoba and Nova Scotia—are setting up, in conjunction with their dental schools, special courses for dental hygienists. In all ten provinces free clinical care is provided for children in remote rural areas by the use of mobile units. One province uses two railway-coach dental clinics to serve remote areas. A successful locally sponsored plan in which the cost of dental services for children is shared by the local community and the provincial health department is in operation in more than 80 communities in British Columbia; the sponsoring group decides whether registration for treatment may be free or on the payment of a nominal sum.

Nutrition.—Services include technical guidance, education, consultation and research. In some provinces, school lunch programs are also sponsored and dietary supplements distributed. Five provinces have special nutrition divisions; elsewhere, nutritionists serve in other divisions of the health department.

Health Education.—In most provinces experience has demonstrated the need for a professional full-time 'health educator' as a member of the public health team. Nine provinces have separate divisions or units to co-ordinate the dissemination of health information through all available media.

Public Health Laboratories.—The public health laboratory, an essential facility in the protection of community health and the control of infectious diseases, was one of the earliest provincial services developed to assist local public health departments. Work performed includes bacteriological examination of water, milk and food samples, the examination of specimens for diagnosis of communicable disease, and special pathological services. Each province maintains a central public health laboratory and most provinces have established additional branch laboratories. Recent trends in some provinces include efforts to co-ordinate public health and hospital laboratory services, special measures to bring laboratory facilities to rural areas, and devices to reduce the direct cost of clinical laboratory procedures to the individual.

Services for Specific Diseases or Disabilities.—Each province has developed special programs to deal with health problems of particular severity and prevalence, many of which are chronic or long-term in nature. The services and facilities provided are generally similar across the country.

Mental Health.—Major developments in provincial mental health programs have included the expanding and modernizing of mental hospitals, the training of various kinds of psychiatric personnel, and the extension of community mental health services outside mental institutions. Assistance to patients in securing employment and in social adjustment following discharge from mental hospitals—a relatively new field of rehabilitation—is being promoted by voluntary groups and government agencies in several provinces.

With the exception of the municipally owned local institutions in Nova Scotia and hospitals in Quebec that operate under religious or lay auspices, most mental institutions are administered by provincial authorities. A great part of the cost is borne by the provincial governments, although a charge, according to ability to contribute, may be made for care in some provinces. Newfoundland and Saskatchewan provide complete free care; Manitoba assumes a minimum maintenance cost for all patients; in Nova Scotia the provincial hospital gives free care to patients requiring active treatment; and in Ontario and Prince Edward Island mental institution treatment is included in the hospital care insurance plan.

Most public mental institutions provide care and treatment for all types of mental illness; as facilities expand, it is becoming possible to segregate those under intensive treatment from those receiving long-term care. Some provinces maintain separate accommodation for certain categories of the mentally ill. For example, in British Columbia and Alberta, homes for the senile aged are an integral part of the mental institution system. Quebec has separate institutions for epileptics. Seven provinces operate schools for residential treatment and education of mentally defective persons and New Brunswick, one of the three other provinces, enacted legislation in 1958 authorizing governmental support of the maintenance of mentally retarded children in approved homes. Increasing numbers of local day classes, usually sponsored by organizations of parents, offer training opportunities for mentally deficient children in the community.

As the needs of patients are more fully understood and better methods of treatment develop, the daily routine of the mental patient is becoming less restrictive, as is shown by the increasing number of persons coming voluntarily for treatment. Custodial care and locked doors are giving way to open wards where patients may have unrestricted access to grounds and to occupational and recreational areas.

One of the greatest changes in the past decade has been in the extension of community mental health services outside mental institutions. General hospitals have expanded their psychiatric services in both in-patient and out-patient departments. About 40 general hospitals have organized units where psychiatric treatment is provided by professional staffs. Out-patient clinics where mental illness may be treated at an early stage and guidance services may be given to children and parents also play an important part in the treatment of mental illness outside mental institutions. In 1959, at least 87 mental health clinics and psychiatric out-patient departments were operated by provincial health departments, municipalities or health units, mental institutions, general and allied special hospitals, school boards and voluntary organizations.

Day and night care centres, another departure from the traditional form of custodial care, were developed first in Montreal more than a decade ago as part of the psychiatric service of two large general hospitals. Similar day care centres, admitting patients on a nine-to-five basis, are conducted in several other hospitals.

Cerebral Palsy.—Children suffering from cerebral palsy in most larger cities are able to attend out-patient and training centres, many of which have been organized by groups of parents. A number of general and children's hospitals have also established assessment and treatment facilities for cerebral-palsied children. In most communities, buses to transport children to day centres and hospital clinics are provided and operated

by local service clubs or provincial societies for crippled children. Attendance fees are usually nominal, with financial support of the centres coming from local voluntary contributions, provincial governments and federal health grants. Training and employment programs for young adults with cerebral palsy are also being developed in a few cities.

Tuberculosis.—Despite greatly reduced mortality from tuberculosis and evidence of some lowering in incidence, the number of cases discovered through provincial detection programs indicates that it is still a public health problem. Case-finding efforts are being focused increasingly on selected groups particularly vulnerable, using tuberculin tests as an aid to detection. The work of case-finding is supported substantially by voluntary campaigns conducted by the Canadian Tuberculosis Association. In most provinces, sanatorium treatment is provided at government expense. Even in those provinces where an individual charge may be made, the amount collected from paying patients is a very small percentage of total costs.

The number of beds set up in sanatoria and in tuberculosis units of general hospitals declined from a peak of 18,977 in 1953 to 13,538 in 1959. This decline in bed use has resulted from such factors as a decrease in the number of admissions, detection of cases in earlier stages of the disease, and improved treatment methods by drugs and surgery. Provision has been made in several provinces to furnish drugs for home treatment. Facilities for the vocational rehabilitation of discharged patients have been developed in all provinces, and increasing numbers are being re-established in suitable employment.

Cancer.—Health departments and lay and professional groups working for the control of cancer have been concerned mainly with four aspects of the problem—diagnosis, treatment, research and public education. In cancer detection and treatment, specialized medicine, hospital services and an expanding public health program are closely related. There are programs operating under health departments in four provinces; four others have provincially supported cancer agencies or commissions. These sponsor the work of diagnosis and treatment in special clinics, located usually within the larger general hospitals. Under the provincial hospital insurance plans, the benefits pertaining to in-patient care in the treatment of cancer are essentially similar in ten provinces and include such special services as diagnostic radiology, laboratory tests and radiotherapy. In at least five provinces these benefits apply also to out-patients. In others, the previous pattern of services to out-patients—that of assessing costs of treatment in relation to ability to pay—is still in effect. Comprehensive free medical programs for cancer patients have long operated in Saskatchewan and Alberta, and similar benefits for cancer in-patients in New Brunswick were introduced in 1961.

Poliomyelitis.—Through agreements with the Federal Government, all provincial health departments have made Sabin vaccine and Salk vaccine available for free immunization of children and adults. During 1959, the incidence of paralytic poliomyelitis rose in all provinces to its highest level since vaccination began, but in 1960 it dropped by more than one-half and in 1961 reached a record low. Very few who had received the prescribed number of inoculations contracted the disease.

Previously existing programs offering free standard-ward hospital care to poliomyelitis patients have been incorporated in the federal-provincial hospital insurance schemes. In the provision of restorative services through remedial surgery, physiotherapy and hydrotherapy and the aid of prosthetic appliances, provincial departments of health and voluntary societies both have a part. Post-poliomyelitic patients may receive vocational training under provincial rehabilitation schemes; boards of education operate special classes for physically handicapped children.

Venereal Disease.—Free diagnostic and treatment services are available in all provinces but the operation of government clinics is being increasingly superseded by the method of supplying free drugs to private physicians who are reimbursed for treatment of indigents on a fee-for-service basis.

Alcoholism.—Ontario, Manitoba, Alberta and British Columbia carry out research and education programs and operate centres for treatment, supported largely by public funds. Ontario, Saskatchewan and Alberta also have rehabilitation programs for alcoholic inmates of reform institutions. Recent legislation in Newfoundland and Nova Scotia authorizes the setting up of similar agencies to initiate research and education studies in those provinces.

Other Diseases or Disabilities.—Services for a number of chronic disabilities, such as heart disease, arthritis, diabetes, visual and auditory impairments and paraplegia have been developed largely by voluntary agencies assisted by federal and provincial funds. A brief description of the programs of some of these agencies is given in Part III, pp. 270-273, which deals with national voluntary health and welfare activities.

Public Medical Care.—Public medical care programs for the general population exist in three provinces, but are limited to residents of particular areas. Approximately one-half of Newfoundland's population receive physicians' services at home or in hospital under the provincially administered Cottage Hospital Plan which is financed in part on a premium basis. Medical indigents not under the Plan may also receive care at provincial expense. In addition, all Newfoundland children under the age of 16 years are entitled to free medical and surgical care in hospital. In Manitoba and Saskatchewan, locally operated municipal-doctor programs cover about 28,000 and 158,000 persons, respectively. The Swift Current Health Region in Saskatchewan operates a comprehensive prepaid medical-dental and out-patient hospital care scheme for about 53,000 persons. These latter programs are subsidized to some extent by provincial health departments.

For some years Nova Scotia, Ontario, Saskatchewan, Alberta and British Columbia have provided health service programs for regular social assistance recipients—persons in receipt of means-tested old age security supplements, old age assistance, blindness and disability allowances, and mothers' allowances and, in some provinces, certain child welfare cases. However, Nova Scotia covers only mothers' allowance recipients and their dependants and blindness allowance recipients and, in Saskatchewan, old age assistance recipients are the responsibility of the municipality of residence. Manitoba began a comprehensive program in 1960 covering physicians' services in home and office as well as essential optical, dental and drug services.

Under the Ontario program, the principal medical service covered is physicians' care in the home and office, including certain minor surgical procedures and prenatal and post-natal care. Since Jan. 1, 1959, basic dental care has been available to the children of mothers' allowance recipients. In addition to these medical services, Nova Scotia provides major and minor surgical and obstetrical services and medical attendance in hospital. The programs in Saskatchewan, Alberta and British Columbia give complete medical care in the home, office and hospital, including surgical and obstetrical services, specified prescription drugs (except in Alberta, and with a dollar limitation in Saskatchewan for non-life-saving drugs where financial hardship is not demonstrated), and dental and optical care, sometimes only on special authorization and or with dollar limits. The Old Age Assistance group in Saskatchewan is entitled to hospital care only. All of these plans are completely provincially financed, except in British Columbia where costs are shared on a 90-10 basis with the municipalities assuming their 10-p.c. share on a basis proportionate to population, and in Ontario where per capita contributions toward the cost of medical services for the Old Age Assistance group are shared on an 80-20 basis with the municipality of residence. Manitoba's program of provincial social assistance includes health care for cases of need among the aged and infirm, including those in nursing homes or institutions, the blind and the physically or mentally disabled, mothers with custody of dependent children, and neglected children. Services provided include medical and surgical care in homes and doctors' offices, optical and dental care, essential drugs, remedial care and treatment including physiotherapy, emergency transportation and chiropractic treatment. Physicians provide care in hospital without charge.

Indigent persons not covered by these programs, as well as indigents in other provinces, may receive necessary care from the municipalities in which they reside. Sometimes, where costs are assumed by the municipality, there is some form of cost-sharing arrangement with the provincial government.

Rehabilitation Services.—Rehabilitation services for persons handicapped by physical or mental defects are organized under governmental and voluntary auspices as part of general health, welfare or education programs, and also by specialized rehabilitation agencies that make available a range of services. Expansion of these services in all provinces indicates growing success in prevention and cure of many disabling conditions and broader understanding of the needs of the handicapped person. Following the earlier rehabilitation programs organized for injured workers, disabled war veterans and such groups as the blind and the tuberculous, there has been increasing emphasis given to extending comprehensive services to all handicapped persons regardless of disability and to strengthening national, provincial and community bodies concerned with planning and co-ordination.

At the 1960-61 session of Parliament, efforts by the Department of Labour to develop a comprehensive and co-ordinated vocational rehabilitation program were given statutory recognition with the enactment of the Vocational Rehabilitation of Disabled Persons Act, proclaimed in force on Dec. 1, 1961. This Act authorizes federal-provincial agreements to share the costs of comprehensive services to disabled persons capable of vocational usefulness either in employment or in the home, the training of rehabilitation counsellors or administrators and the co-ordination of services. The Act also provides for research in vocational rehabilitation, publication of information, and the establishment of a 25-member National Advisory Council with representation from the various federal and provincial departments involved and from other interested groups. Administration and co-ordination of the program is carried out by the National Co-ordinator in the Civilian Rehabilitation Branch of the Department of Labour, with the co-operation of the Medical Rehabilitation Division of the Department of National Health and Welfare in matters of mutual concern.

The main elements of the nation-wide rehabilitation program include also the Special Placement Section of the National Employment Service, a joint federal-provincial program for the vocational training of disabled persons, and the National Health Grants designated for the extension of medical rehabilitation and crippled children's services and for rehabilitation of the mentally ill or deficient, the tuberculous and other chronically ill persons. The Federal Government also provides direct services for particular groups through programs administered by the Department of Veterans Affairs for disabled, chronically ill and aging veterans, by the Department of Citizenship and Immigration for physically and socially handicapped Indians, and by the Department of Northern Affairs and National Resources for the training and resettlement of disabled Eskimos and Indians within its jurisdiction.

Provincial vocational rehabilitation programs, supported by matching federal grants, assist disabled persons who can be restored to gainful employment. Other specialized facilities which co-operate with the provincial programs include hospital physical medicine and rehabilitation departments and special clinics for particular disabilities, separate rehabilitation centres, sheltered workshops, vocational counselling, training and job placement agencies and special schools, classes and other combined treatment and educational centres for handicapped children. Home care services, such as nursing, physical and occupational therapy and housekeeping services, employment of the homebound and recreational services have been developed by a few agencies but their coverage is generally limited.

Vocational assessment and counselling of the handicapped is provided by rehabilitation counsellors employed by the provincial rehabilitation programs and some of the other

rehabilitation agencies and centres. Employment counselling is offered by the Special Placement Section of the National Employment Service. The main responsibility for job placement of persons with occupational handicaps is carried by about 250 full-time special placement officers located in 114 local employment service offices across the country and additional part-time officers in other centres. Employment liaison officers who advise on the employability of applicants and employment conditions are appointed to the offices of the provincial co-ordinators of rehabilitation in five provinces. Some rehabilitation agencies also do placement work, especially of the severely handicapped.

In the year ended Mar. 31, 1961, federal-provincial expenditures under the rehabilitation co-ordination agreements, which preceded the new legislation, totalled \$300,802. A study of the cases on which full details were available shows that the cost of support of 1,614 disabled persons (and their dependants) was \$954,304 during the year prior to acceptance, as compared with estimated annual earnings of \$2,730,502 after placement in jobs. Federal expenditures on 58 projects under the Medical Rehabilitation and Crippled Children's Grant (a portion of these funds being on a matching basis) amounted to \$1,159,204 of the \$2,625,000 available from federal funds in the year ended Mar. 31, 1961. The majority of the projects were used to extend personal services to disabled persons through the employment of rehabilitation personnel in hospitals and rehabilitation centres, crippled children's programs and special clinics; 17 projects supported six training schools for physical and occupational therapy and training in speech therapy and audiology as well as student training bursaries in the rehabilitation professions; and the remainder was used for equipment and research. The total federal-provincial vocational training expenditures in 1960-61 under the Special Vocational Training Projects Agreements increased to \$659,134 for the training of 1,462 disabled persons enrolled in a wide range of vocational courses. Special placements of handicapped persons who required assistance in finding work in 1960 numbered 16,320.

Section 3.—Health Services in the Yukon and Northwest Territories

Health services in the two Territories are operated under conditions considerably different from those in the provinces. Extensive sparsely settled areas, severe climatic conditions, lack of local government, and direct federal administration constitute a basic set of conditions under which health services for both native and white populations, outside the few settled areas, are provided by government agencies or religious organizations. The Government of the Yukon Territory, the Council of the Northwest Territories, the Directorate of Indian and Northern Health Services of the Department of National Health and Welfare, the Department of Northern Affairs and National Resources, and the Department of National Defence are all concerned with the provision of services.

Complete health services are supplied to Indians and Eskimos by the Indian and Northern Health Services. Particular emphasis is given to tuberculosis, and mass X-ray programs are carried out annually. The Eastern Arctic is served by the annual Eastern Arctic Patrol as well as by medical health officers. In the Western Arctic, medical officers and nursing stations are located at strategic points and a travelling dentist is employed. Persons who cannot be cared for locally are transferred to hospitals in the provinces.

In the Yukon Territory, services for the white population are administered through the Commissioner for the Yukon and include complete treatment for tuberculosis and poliomyelitis patients, and medical care for indigent residents. Public health services include communicable disease control, public health nursing, sanitary inspection and

tuberculosis case-finding. In the Northwest Territories, health programs for the white population include treatment for tuberculosis and venereal disease as well as dental care for children under 17 years of age and hospital care for the mentally ill. Cancer diagnosis is provided. Indigent residents are eligible for medical, dental and optical treatment as well as for general hospital care.

Hospital insurance plans in both the Yukon and the Northwest Territories came into operation in 1960.

Section 4.—Hospital and Other Health Statistics

Statistical information on the health of Canadians is at present limited to the well established and highly standardized mortality, communicable disease and institutional statistics series, all of which have been available for a long period, and the recently established series covering operations under the federal-provincial hospital insurance program (pp. 224-229). Other national health statistics are still in an early stage of development. So far, the only source of information on general illness, health services and personal expenditure for health care is the Canadian Sickness Survey of 1950-51. Other projects deal with specific health problems or selected groups of the population, such as Civil Service illness and the activities of the Victorian Order of Nurses. Much statistical information is also available from provincial and other health sources.

Statistics on causes of death are given in the Chapter on Vital Statistics, pp. 197-199; those on hospital statistics in Subsection 1 following; and those on notifiable diseases and illness in the Civil Service in Subsection 2. A brief outline of the scope and methods of the Sickness Survey of 1950-51 is given in the 1955 Year Book and some of the results are published in the 1955, 1956 and 1957-58 editions. Details are available in bulletin form (Catalogue Nos. 82-501 to 82-511).

Subsection 1.—Hospital Statistics*

There were 1,372 hospitals of all types operating in Canada in 1960, having a rated bed capacity of 189,278 (excluding bassinets for newborn). Of these, 1,040 were general hospitals with 96,925 beds; 81 were mental hospitals with 61,042 beds; 62 were tuberculosis sanatoria with 13,684 beds; and 189 were hospitals providing for special types of patients, with 17,627 beds. As a result of a recent re-evaluation of facilities, a number of institutions providing solely custodial or domiciliary care were removed from the list of "hospitals" for statistical purposes.

Hospitals are classified in two ways in the tables of this Subsection. The first is by ownership, i.e., public, private or federal, and the second by type of service provided, i.e., general, mental, tuberculosis and other. Combinations of the two classifications are used in Tables 8 and 9, which show the number of hospitals of each type and their bed capacities, distributed provincially.

In 1960, three of every four hospitals were general hospitals—devoted to the active treatment of a wide variety of illnesses; among the provinces, only Quebec and Ontario had smaller proportions of general hospitals than the nation as a whole. For every 10,000 persons in Canada in 1960 there were 108.5 beds; the Prairie Provinces, Quebec, Prince Edward Island and the Territories had higher ratios and all other provinces lower ratios.

* Prepared in the Institutions Section of the Health and Welfare Division, Dominion Bureau of Statistics. Detailed information will be found in the following DBS publications: *Hospital Statistics, Vols. I to VIII* (Catalogue Nos. 83-210 to 83-216); *Mental Health Statistics* (Catalogue No. 83-204) and *Financial Supplement* (No. 83-205); *Tuberculosis Statistics* (No. 83-206) and *Financial Supplement* (No. 83-207).

8.—Hospitals (Public, Private and Federal) Operating in Canada, by Province, 1960

Province or Territory and Category of Hospital	General	Mental ¹	Tuber- culosis ²	Other	Total
	No.	No.	No.	No.	No.
Newfoundland—					
Public.....	44	1	2	3	50
Private.....	—	—	—	—	—
Federal.....	1	—	—	—	1
Prince Edward Island—					
Public.....	8	1	1	1	11
Private.....	—	—	—	—	—
Federal.....	—	—	—	—	—
Nova Scotia—					
Public.....	44	10	3	3	60
Private.....	2	—	—	—	2
Federal.....	6	—	—	—	6
New Brunswick—					
Public.....	33	2	5	3	43
Private.....	—	—	—	—	—
Federal.....	3	—	—	2	5
Quebec—					
Public.....	118	16	15	58	207
Private.....	52	5	1	40	98
Federal.....	6	—	—	1	7
Ontario—					
Public.....	182	18	13	24	237
Private.....	26	5	—	30	61
Federal.....	14	1	1	1	17
Manitoba—					
Public.....	75	4	4	2	85
Private.....	6	—	—	2	8
Federal.....	17	—	—	—	17
Saskatchewan—					
Public.....	153	3	3	3	162
Private.....	—	—	—	3	3
Federal.....	6	—	—	—	6
Alberta—					
Public.....	102	6	2	11	121
Private.....	1	—	—	—	1
Federal.....	13	—	1	—	14
British Columbia—					
Public.....	94	8	2	2	106
Private.....	7	1	—	—	8
Federal.....	4	—	3	—	7
Yukon and Northwest Territories—					
Public.....	7	—	6	—	13
Private.....	3	—	—	—	3
Federal.....	13	—	—	—	13
Canada—					
Public.....	860	69	56	110	1,095
Private.....	97	11	1	75	184
Federal.....	83	1	5	4	93

¹ Mental hospitals only; does not include psychiatric or mental units in general hospitals.² Tuberculosis

hospitals only; does not include tuberculosis units in general hospitals.

**9.—Bed Capacity of Hospitals (Public, Private and Federal) Operating in Canada,
by Province, as at Dec. 31, 1960**

(Excluding bassinets)

Province or Territory and Category of Hospital	General		Mental		Tuberculosis		Other		Totals	
	Beds	Per 10,000 Popu- lation ¹	Beds	Per 10,000 Popu- lation ¹	Beds	Per 10,000 Popu- lation ¹	Beds	Per 10,000 Popu- lation ¹	Beds	Per 10,000 Popu- lation ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—										
Public.....	1,843	41.0	835	18.6	550	12.2	92	2.0	3,320	73.9
Private.....	—	—	—	—	—	—	—	—	—	—
Federal.....	35	0.8	—	—	—	—	—	—	35	0.8
Prince Edward Island—										
Public.....	659	64.6	343	33.6	100	9.8	30	2.9	1,132	111.0
Private.....	—	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—	—
Nova Scotia—										
Public.....	3,242	45.3	2,713	37.9	515	7.2	148	2.1	6,618	92.4
Private.....	16	0.2	—	—	—	—	—	—	16	0.2
Federal.....	886	12.4	—	—	—	—	—	—	886	12.4
New Brunswick—										
Public.....	2,989	50.7	1,331	22.6	907	15.4	112	1.9	5,339	90.5
Private.....	—	—	—	—	—	—	—	—	—	—
Federal.....	587	9.9	—	—	—	—	19	0.3	606	10.3
Quebec—										
Public.....	21,273	42.6	17,503	35.0	4,122	8.2	9,356	18.7	52,254	104.5
Private.....	965	1.9	289	0.6	25	0.1	943	1.9	2,222	4.4
Federal.....	2,500	5.0	—	—	—	—	7	—	2,507	5.0
Ontario—										
Public.....	28,220	47.4	18,993	31.9	3,391	5.7	4,055	6.8	54,659	91.8
Private.....	839	1.4	378	0.6	—	—	636	1.1	1,853	3.1
Federal.....	2,116	3.6	1,520	2.6	168	0.3	150	0.3	3,954	6.6
Manitoba—										
Public.....	4,462	50.4	3,405	38.5	773	8.7	699	7.9	9,339	105.5
Private.....	65	0.7	—	—	—	—	56	0.6	121	1.4
Federal.....	967	10.9	—	—	—	—	—	—	967	10.9
Saskatchewan—										
Public.....	6,196	68.7	3,190	35.4	662	7.3	515	5.7	10,563	117.1
Private.....	—	—	—	—	—	—	12	0.1	12	0.1
Federal.....	168	1.9	—	—	—	—	—	—	168	1.9
Alberta—										
Public.....	7,694	61.9	4,760	38.3	600	4.8	640	5.1	13,694	110.2
Private.....	15	0.1	—	—	—	—	—	—	15	0.1
Federal.....	730	5.9	—	—	500	4.0	—	—	1,230	9.9
British Columbia—										
Public.....	8,422	53.6	5,709	36.4	389	2.5	157	1.0	14,677	93.5
Private.....	170	1.1	73	0.5	—	—	—	—	243	1.5
Federal.....	1,452	9.2	—	—	558	3.6	—	—	2,010	12.8
Yukon and Northwest Territories—										
Public.....	211	62.1	—	—	424	124.7	—	—	635	186.8
Private.....	30	8.8	—	—	—	—	—	—	30	8.8
Federal.....	173	50.9	—	—	—	—	—	—	173	50.9
Canada—										
Public.....	85,211	48.9	53,782	33.7	12,433	7.1	15,804	9.1	172,230	98.7
Private.....	2,100	1.2	740	0.4	25	—	1,647	0.9	4,512	2.6
Federal.....	9,614	5.5	1,520	0.9	1,226	0.7	176	0.1	12,536	7.2

¹ Based on estimated population as at June 1, 1960.

Although 1960 information on numbers of hospitals operating in Canada and their bed capacities was available at the time of the preparation of this Chapter, details for that year regarding movement of patients, patient-days, hospital facilities, and finances had not yet been compiled. Tables 10 to 12 give these data for the year 1959.

Table 10 shows the pattern of hospital utilization over the period 1955-59. The number of admissions to all hospitals increased by 19 p.c. during this period while the number of patient-days increased by 9.3 p.c., signifying greater utilization of hospital facilities but shorter average length of stay for in-patients. The number of patients in hospital per 100,000 population at the end of 1959 was 17 fewer than at the end of 1955. Admissions to public tuberculosis hospitals were 5.8 p.c. lower in 1959 than in 1958 and patient-days were down by 8.2 p.c. On the other hand, public mental hospitals experienced an increase in admissions of 9.6 p.c. although the increase in patient-days was only 0.4 p.c., denoting a shorter length of stay for patients in these hospitals.

10.—Movement of Patients and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1955-59

Type of Service and Item	1955	1956	1957	1958	1959
PUBLIC HOSPITALS					
General—					
Hospitals reporting.....No.	781	796	820	833	846
Ratio of reporting to operating hospitals.....p.c.	96.7	97.0	98.4	98.2	98.9
Admissions.....No.	2,394,777	2,548,389	2,675,400	2,764,214	2,844,352
Per 100,000 population....."	15,255	15,847	16,128	16,214	16,307
Discharges and deaths....."	2,392,900	2,547,715	2,672,034	2,760,932	2,840,916
Patients in hospital at Dec. 31....."	54,181	55,836	58,359	62,561	64,836
Per 100,000 population....."	345	347	352	367	372
Patient-days....."	22,728,944	24,113,477	24,910,797	25,752,916	26,914,286
Chronic and Convalescent—					
Hospitals reporting.....No.	46	46	51	63	66
Ratio of reporting to operating hospitals.....p.c.	88.5	86.8	85.0	82.9	88.0
Admissions.....No.	10,821	10,323	10,297	10,941	11,710
Per 100,000 population....."	69	64	62	64	67
Discharges and deaths....."	10,577	9,748	9,980	10,902	11,303
Patients in hospital at Dec. 31....."	6,939	7,402	7,898	9,131	9,895
Per 100,000 population....."	44	46	48	54	57
Patient-days....."	2,553,450	2,640,020	2,879,856	3,336,708	3,542,419
Maternity—					
Hospitals reporting.....No.	17	17	12	11	13
Ratio of reporting to operating hospitals.....p.c.	94.4	94.4	92.3	78.6	100.0
Admissions.....No.	28,936	24,715	25,695	24,114	48,429
Per 100,000 population....."	184	154	155	141	278
Discharges and deaths....."	29,052	24,681	25,716	24,118	48,344
Patients in hospital at Dec. 31....."	647	460	443	432	1,211
Per 100,000 population....."	4	3	3	3	7
Patient-days....."	230,582	186,001	189,290	174,652	327,938
Mental—					
Hospitals reporting.....No.	70	71	72	71	69
Ratio of reporting to operating hospitals.....p.c.	100.0	100.0	100.0	100.0	100.0
Admissions.....No.	23,274	23,601	26,133	27,238	29,840
Per 100,000 population....."	149	147	158	160	171
Discharges and deaths....."	21,236	22,089	24,821	26,172	28,144
Patients in hospital at Dec. 31....."	61,264	62,590	63,318	63,861	63,872
Per 100,000 population....."	390	389	382	375	367
Patient-days....."	22,824,487	23,269,402	23,393,648	23,942,562	24,049,237
Tuberculosis—					
Hospitals reporting.....No.	55	55	54	51	50
Ratio of reporting to operating hospitals.....p.c.	100.0	100.0	100.0	100.0	100.0
Admissions.....No.	13,445	14,075	15,075	13,352	12,571
Per 100,000 population....."	86	88	91	78	72
Discharges and deaths....."	16,565	16,855	18,160	15,674	13,777
Patients in hospital at Dec. 31....."	11,432	10,928	9,657	8,371	7,276
Per 100,000 population....."	73	68	58	49	42
Patient-days....."	4,398,047	4,240,546	3,887,198	3,413,428	3,131,830

For footnotes, see end of table, p. 244.

10.—Movement of Patients and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1955-59—continued

Type of Service and Item	1955	1956	1957	1958	1959
PUBLIC HOSPITALS—concluded					
Totals, Public Hospitals—⁴					
Hospitals reporting..... No.	983	998	1,020	1,044	1,059
Ratio of reporting to operating hospitals. p.c.	96.3	96.4	97.5	96.8	98.1
Admissions ¹ No.	2,485,538	2,632,765	2,762,224	2,851,715	2,961,370
Per 100,000 population..... "	15,833	16,372	16,651	16,728	16,978
Discharges and deaths..... "	2,484,531	2,632,678	2,761,387	2,849,461	2,956,860
Patients in hospital at Dec. 31..... "	135,813	138,211	140,564	145,864	148,640
Per 100,000 population..... "	865	859	847	856	852
Patient-days..... "	53,269,979	54,838,641	55,621,190	57,179,935	58,561,737
PRIVATE HOSPITALS					
General—					
Hospitals reporting..... No.	55	65	63	55	68
Ratio of reporting to operating hospitals. p.c.	60.4	81.3	80.8	73.3	73.1
Admissions ¹ No.	37,071	48,137	47,747	53,139	61,010
Per 100,000 population..... "	236	299	288	312	350
Discharges and deaths..... "	38,081	47,980	47,665	52,935	61,009
Patients in hospital at Dec. 31..... "	529	878	917	895	1,068
Per 100,000 population..... "	3	5	6	5	6
Patient-days..... "	233,709	366,395	378,235	342,934	480,024
Mental—²					
Hospitals reporting..... No.	4	4	5	5	5
Ratio of reporting to operating hospitals. p.c.	80.8	80.0	71.4	62.5	62.5
Admissions ¹ No.	1,962	1,955	2,118	2,601	2,860
Per 100,000 population..... "	12	12	13	15	16
Discharges and deaths..... "	1,965	1,967	2,065	2,609	2,800
Patients in hospital at Dec. 31..... "	392	386	427	327	371
Per 100,000 population..... "	2	2	3	2	2
Patient-days..... "	145,599	146,078	150,013	121,930	131,309
Totals, Private Hospitals—⁴					
Hospitals reporting..... No.	180	209	237	210	237
Ratio of reporting to operating hospitals. p.c.	63.2	77.1	78.7	77.5	70.5
Admissions ¹ No.	65,490	74,510	75,210	78,365	93,580
Per 100,000 population..... "	417	463	453	460	536
Discharges and deaths..... "	65,379	74,221	74,927	77,959	93,145
Patients in hospital at Dec. 31..... "	3,076	3,769	4,361	4,493	7,436
Per 100,000 population..... "	20	23	26	26	43
Patient-days..... "	1,160,862	1,447,915	1,635,949	1,640,880	1,822,793
FEDERAL HOSPITALS					
General—					
Hospitals reporting..... No.	36	35	35	33	44
Ratio of reporting to operating hospitals. p.c.	100.0	100.0	100.0	100.0	77.2
Admissions ¹ No.	75,506	73,342	74,327	74,766	80,083
Per 100,000 population..... "	481	456	448	439	459
Discharges and deaths..... "	75,775	73,564	74,486	74,982	80,136
Patients in hospital at Dec. 31..... "	7,579	7,563	7,405	7,193	6,020
Per 100,000 population..... "	48	47	45	42	35
Patient-days..... "	3,196,335	3,137,461	3,098,808	2,986,536	2,552,222
Tuberculosis—³					
Hospitals reporting..... No.	7	6	6	5	5
Ratio of reporting to operating hospitals. p.c.	100.0	100.0	100.0	100.0	100.0
Admissions ¹ No.	789	780	750	694	503
Per 100,000 population..... "	5	5	5	4	3
Discharges and deaths..... "	1,100	970	1,006	950	645
Patients in hospital at Dec. 31..... "	894	834	776	696	431
Per 100,000 population..... "	6	5	5	4	2
Patient-days..... "	350,083	339,316	319,636	297,798	287,392

For footnotes, see end of table, p. 244.

10.—Movement of Patients and Patient-Days of Reporting Public, Private and Federal Hospitals, by Type, 1955-59—concluded

Type of Service and Item	1955	1956	1957	1958	1959
FEDERAL HOSPITALS—concluded					
Totals, Federal Hospitals—⁴					
Hospitals reporting..... No.	55	52	49	47	53
Ratio of reporting to operating hospitals... p.c.	100.0	100.0	100.0	100.0	72.6
Admissions ¹ No.	81,618	82,562	77,665	76,205	81,212
Per 100,000 population..... "	539	513	468	447	466
Discharges and deaths..... "	85,208	82,829	77,927	76,488	81,413
Patients in hospital at Dec. 31..... "	9,161	9,132	8,713	8,477	7,805
Per 100,000 population..... "	58	57	53	50	45
Patient-days..... "	3,866,729	3,756,126	3,597,154	3,503,386	3,154,697
ALL HOSPITALS ⁴					
General—					
Hospitals reporting..... No.	872	896	918	921	958
Ratio of reporting to operating hospitals... p.c.	93.3	95.7	97.0	96.3	95.3
Admissions ¹ No.	2,507,354	2,669,868	2,797,474	2,892,119	2,985,445
Per 100,000 population..... "	15,972	16,803	16,863	16,965	17,116
Discharges and deaths..... "	2,506,756	2,669,259	2,795,185	2,888,829	2,982,061
Patients in hospital at Dec. 31..... "	62,289	64,277	66,681	70,649	71,924
Per 100,000 population..... "	397	400	402	414	412
Patient-days..... "	26,158,988	27,617,333	28,387,840	29,082,386	29,946,532
Mental—²					
Hospitals reporting..... No.	74	75	77	76	76
Ratio of reporting to operating hospitals... p.c.	98.7	98.7	97.5	96.2	96.2
Admissions ¹ No.	25,336	25,556	28,251	29,339	33,146
Per 100,000 population..... "	161	159	170	175	190
Discharges and deaths..... "	23,201	24,056	26,886	28,781	31,418
Patients in hospital at Dec. 31..... "	61,656	62,976	63,745	64,188	65,450
Per 100,000 population..... "	393	392	384	377	376
Patient-days..... "	22,970,086	23,415,480	23,543,661	24,064,492	24,631,582
Tuberculosis—³					
Hospitals reporting..... No.	63	62	60	56	55
Ratio of reporting to operating hospitals... p.c.	100.0	100.0	100.0	100.0	100.0
Admissions ¹ No.	14,235	14,856	15,825	14,046	13,074
Per 100,000 population..... "	91	92	95	82	75
Discharges and deaths..... "	17,666	17,827	19,166	16,624	14,422
Patients in hospital at Dec. 31..... "	12,327	11,762	10,433	9,067	7,707
Per 100,000 population..... "	79	73	63	53	44
Patient-days..... "	4,748,495	4,579,896	4,206,834	3,711,226	3,419,222
Totals, All Hospitals—⁴					
Hospitals reporting..... No.	1,218	1,259	1,306	1,301	1,349
Ratio of reporting to operating hos- pitals..... p.c.	89.5	92.6	93.5	93.1	90.7
Admissions ¹ No.	2,635,646	2,789,837	2,915,099	3,006,285	3,136,162
Per 100,000 population..... "	16,790	17,349	17,572	17,634	17,981
Discharges and deaths..... "	2,635,118	2,789,728	2,914,241	3,003,908	3,128,927
Patients in hospital at Dec. 31..... "	148,050	151,112	153,638	158,834	161,452
Per 100,000 population..... "	943	940	926	932	926
Patient-days..... "	58,297,570	60,042,682	60,854,293	62,324,201	63,728,183

¹ First admissions and readmissions.

² Mental hospitals only; does not include psychiatric or mental units in general hospitals.

³ Tuberculosis hospitals only; does not include tuberculosis units in general hospitals.

⁴ Includes other types not specified.

Radiology, clinical laboratory and physiotherapy facilities in public and federal hospitals are shown distributed by province and type of hospital in Table 11. Almost 90 p.c. of the hospitals reporting had radiology facilities and over 82 p.c. operated clinical laboratories but only 27 p.c. had physiotherapy facilities. Most general hospitals had radiology departments and a high proportion of tuberculosis hospitals operated both radiology departments and clinical laboratories.

11.—Facilities Available in Reporting Public and Federal Hospitals, by Province, 1959

NOTE.—Adequate information on the facilities of private and federal hospitals is not available.

Province and Type of Service	Hospitals Reporting	Facilities—			Province and Type of Service	Hospitals Reporting	Facilities—		
		Radiology	Clinical Laboratory	Physiotherapy			Radiology	Clinical Laboratory	Physiotherapy
	No.	No.	No.	No.		No.	No.	No.	No.
Newfoundland—					Manitoba—				
General.....	44	28	27	3	General.....	73	73	43	10
Mental.....	1	1	1	—	Mental.....	4	4	1	—
Tuberculosis.....	2	2	2	2	Tuberculosis.....	3	3	3	1
Other.....	2	—	1	1	Other.....	1	1	1	1
Prince Edward Island—					Saskatchewan—				
General.....	8	8	7	1	General.....	151	151	148	26
Mental.....	2	2	2	—	Mental.....	3	3	3	—
Tuberculosis.....	1	1	1	1	Tuberculosis.....	2	—	3	—
Other.....	1	—	—	1	Other.....	—	—	—	—
Nova Scotia—					Alberta—				
General.....	43	41	40	11	General.....	99	99	97	23
Mental.....	10	1	—	—	Mental.....	7	3	2	—
Tuberculosis.....	3	3	3	2	Tuberculosis.....	2	1	2	2
Other.....	3	2	1	1	Other.....	11	1	10	3
New Brunswick—					British Columbia—				
General.....	31	30	20	6	General.....	85	85	79	19
Mental.....	2	2	2	—	Mental.....	8	3	2	—
Tuberculosis.....	5	4	3	—	Tuberculosis.....	2	1	1	1
Other.....	3	—	2	2	Other.....	2	1	2	—
Quebec—					Yukon and Northwest Territories—				
General.....	110	106	108	52	General.....	11	11	9	—
Mental.....	14	12	3	—	Mental.....	—	—	—	—
Tuberculosis.....	14	14	12	5	Tuberculosis.....	—	—	—	—
Other.....	41	12	22	11	Other.....	—	—	—	—
Ontario—					Canada—				
General.....	181	179	159	75	General.....	836	811	737	226
Mental.....	18	15	7	—	Mental.....	69	46	23	—
Tuberculosis.....	15	14	14	5	Tuberculosis.....	50	50	41	19
Other.....	22	10	16	17	Other.....	88	27	55	38

Figures are for 1958.

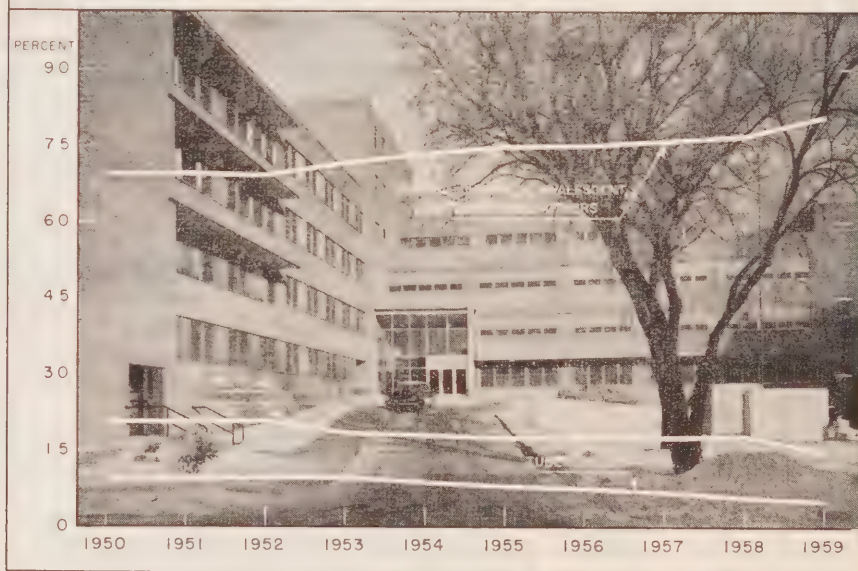
* Two sanatoria reported as one hospital.

For 1959, 954 hospitals reported expenditures of \$632,000,000 on operating costs and revenues of \$611,000,000. The latter included \$473,000,000 net earnings from services to patients, \$100,000,000 from government grants and \$38,000,000 from other sources. Table 12 shows that, while general and allied special hospitals were able to rely to a large extent on their earned income, mental hospitals and tuberculosis sanatoria were dependent mainly on government assistance. In 1959, general and allied special hospitals received \$16 in patient earnings for every dollar received from governments. Mental hospitals, on the other hand, received \$15 in the form of government grants for every dollar of other income; this was a substantial increase over 1958 when the ratio was \$9 to \$1. There was no significant change in the source of revenues of tuberculosis sanatoria from 1958 to 1959. It should be noted that "government grant" in this context does not include payments made on behalf of individual patients for care received, as these are included in net earnings from patient care.

Operating expenses for the average general hospital amounted to \$20.45 per patient-day in 1959 as compared with \$16.59 in 1958; the increase of \$3.86 per patient-day applied almost equally to salaries and wages and other expenses. The highest per diem cost of \$25.47 was experienced in general hospitals with more than 1,000 beds, which may be explained by the fact that hospitals of this size operate a variety of specialized services for treatment of in-patients and out-patients. Costs of out-patient services were not separable for the calculation of a cost per patient-day. Although costs per patient-day in mental hospitals increased from \$4.08 in 1958 to \$5.31 in 1959, they were still the lowest for all classes of hospitals because of limited services required and high utilization of beds.

PERCENTAGE DISTRIBUTION OF OPERATING REVENUE OF PUBLIC HOSPITALS, BY TYPE, 1950-59

(TERRITORIES EXCLUDED THROUGHOUT; NEWFOUNDLAND EXCLUDED 1950-52)



12.—Revenues and Expenditures of Reporting Public Hospitals, by Type, 1959

NOTE.—Financial data for private and federal hospitals not available.

Type	Hospitals Reporting	Revenues				Expenditures			Cost per Patient-Day
		Net Patient Earnings	Government Grants	Other	Total Revenue	Gross Salaries and Wages	Other	Total Expenditure	
	No.	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$
General and Allied Special Hospitals..	852	449,512	10,579	30,770	499,861	316,606	193,577	510,183	18.18
General—									
1- 9 beds	58	1,732	143	121	1,997	1,206	901	2,107	17.93
10- 24 "	220	13,135	487	956	14,578	8,627	6,733	15,360	15.94
25- 49 "	175	23,969	429	1,567	25,965	15,882	11,425	27,307	15.98
50- 99 "	115	33,279	684	2,112	36,075	22,896	15,004	37,900	16.48
100-199 "	122	87,811	1,100	5,562	94,473	60,747	36,805	97,552	19.33
200-299 "	30	37,578	655	2,680	40,913	25,919	16,832	42,751	21.16
300-499 "	34	80,088	900	5,477	86,465	56,957	31,859	88,816	21.40
500-999 "	24	104,747	2,908	6,986	114,641	73,932	44,962	118,894	22.83
1,000 beds or more	5	40,541	1,670	2,709	44,920	30,476	16,572	47,048	25.47
Allied Special—									
Chronic.....	44	16,433	122	1,442	17,997	11,204	7,467	18,671	6.25
Convalescent.....	7	1,445	4	99	1,548	930	605	1,535	11.45
Maternity.....	9	3,679	21	456	4,156	2,936	1,514	4,450	24.61
Other.....	9	5,077	1,456	602	7,135	4,893	2,898	7,791	21.32
Mental Institutions^{1, 2}..	54	19,196	65,602	5,847	90,645	59,820	30,848	90,668	5.31
Tuberculosis Sanatoria^{1, 3}.....	48	4,048	23,898	1,322	29,268	18,685	12,010	30,695	9.86
Totals, Public Hospitals.....	954	472,756	100,079	37,939	610,774	395,111	236,435	631,546	

¹ Exclusive of the Territories for which adequate information is not available. ² Mental hospitals only; does not include psychiatric or mental units in general hospitals. ³ Tuberculosis hospitals only; does not include tuberculosis units in general hospitals. ⁴ Includes payments for services to patients.

Diagnoses of Patients in Mental Institutions and Tuberculosis Sanatoria.—Tables 13 and 14 summarize the most recent data available on diagnoses according to age and sex of patients on the books of mental institutions and tuberculosis sanatoria, including patients in related units located in general hospitals.

Of the 75,617 mentally ill patients under care on Dec. 31, 1959, detailed information is available for 73,047. Of these, 63.6 p.c. had been diagnosed as psychotic, 32.7 p.c. as mentally defective or otherwise affected by character, behaviour and intelligence disorders, and 2.7 p.c. psychoneurotic. More of the male than the female sex had been institutionalized for disorders of character, behaviour and intelligence, with the largest frequency of both sexes occurring in the 10-19 age group. Similarly, more male than female cases (except of persons 70 years of age or over) had been diagnosed as psychotic. However, in all age groups, nearly twice as many women as men had required hospitalization for conditions diagnosed as psychoneurotic.

13.—Diagnoses of Patients on the Books of Reporting Mental Hospitals, by Age and Sex, 1959

NOTE.—Figures include patients in 78 mental hospitals and also patients in psychiatric and mental units in general hospitals.

Diagnosis	0-9		10-19		20-29		30-39	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Psychoses.....	20	12	318	249	2,036	1,299	3,982	3,121
Schizophrenia.....	17	9	231	177	1,695	962	3,114	2,338
Manic-depressive reaction.....	—	—	26	25	92	118	235	357
Of old age.....	—	—	—	—	—	—	—	—
Other.....	3	3	61	47	249	219	633	426

13.—Diagnoses of Patients on the Books of Reporting Mental Hospitals, by Age and Sex, 1959 —concluded

Diagnosis	0-9		10-19		20-29		30-39	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Psychoneuroses	—	—	16	35	79	174	140	289
Neurotic-depressive reaction.....	—	—	5	19	32	86	62	142
Anxiety reaction.....	—	—	—	3	23	22	31	35
Other.....	—	—	11	13	24	66	47	112
Disorders of Character, Behaviour and Intelligence	1,333	1,035	3,771	2,620	2,581	2,026	2,110	1,681
Alcoholism.....	—	—	1	—	23	4	124	26
Mental deficiency.....	1,223	953	3,453	2,330	2,243	1,756	1,627	1,352
Other.....	110	82	317	290	315	266	359	303
Non-psychiatric and Unreported Diagnoses	19	22	45	32	55	17	72	45
	40-49		50-59		60+		Total ¹	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Psychoses	4,843	4,148	5,124	4,458	8,140	8,394	24,502	21,713
Schizophrenia.....	3,396	2,684	2,945	2,417	3,112	2,922	14,534	11,529
Manic-depressive reaction.....	396	516	494	609	778	1,057	2,021	2,688
Of old age.....	6	8	73	42	2,102	2,496	2,185	2,548
Other.....	1,045	940	1,612	1,390	2,148	1,919	5,762	4,948
Psychoneuroses	141	265	143	235	160	288	680	1,288
Neurotic-depressive reaction.....	57	126	59	91	84	136	299	602
Anxiety reaction.....	22	29	19	15	15	26	111	130
Other.....	62	110	65	129	61	126	270	556
Disorders of Character, Behaviour and Intelligence	1,556	1,368	1,061	931	926	770	13,351	10,442
Alcoholism.....	148	32	127	29	98	17	521	108
Mental deficiency.....	1,167	1,117	766	748	680	633	11,171	8,900
Other.....	241	219	168	154	148	120	1,659	1,434
Non-psychiatric and Unreported Diagnoses	86	41	106	63	257	210	641	430

¹ Includes age groups not known.

Among patients reported as on the books of tuberculosis institutions at the end of 1960, the peak frequency for men (1,199) occurred in the 60 years or over age group, and for women (480) in the 20-29 age group. More men than women were listed in each age group except those encompassing ages 10-29. Compared with 1,199 men, only 387 women aged 60 or over were carried on the books of tuberculosis sanatoria and units at Dec. 31, 1960; in contrast, the peak frequency for women aged 20-29 (480) was closely approximated in number by male patients (497).

14.—Diagnoses of Patients on the Books of Reporting Tuberculosis Hospitals, by Age and Sex, 1960

NOTE.—Figures include patients in 70 tuberculosis hospitals and patients in tuberculosis units in general hospitals but exclude tubercular patients in mental hospitals.

Diagnosis	0-9		10-19		20-29		30-39	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Respiratory Tuberculosis	353	339	308	311	448	435	519	427
With occupational disease of lung.....	—	—	—	—	—	—	1	—
Minimal pulmonary.....	52	56	70	104	97	111	75	94
Moderately advanced pulmonary.....	21	19	77	89	189	179	240	177
Far advanced pulmonary.....	4	4	46	36	134	120	193	144
Other and unspecified pulmonary.....	17	20	7	9	2	4	3	3
Pleurisy with or without effusion.....	7	3	30	26	26	17	7	7
Primary infection.....	246	220	69	44	—	4	—	—
Other.....	6	17	9	3	—	—	—	2
Tuberculosis, Other Forms	37	41	29	36	49	45	62	36

**14.—Diagnoses of Patients on the Books of Reporting Tuberculosis Hospitals,
by Age and Sex, 1960—concluded**

Diagnosis	40-49		50-59		60+		Total ¹	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Respiratory Tuberculosis	612	302	709	226	1,168	365	4,131	2,413
With occupational disease of lung.....	4	—	18	—	44	—	67	—
Minimal pulmonary.....	61	53	81	40	110	39	548	499
Moderately advanced pulmonary.....	261	138	272	94	489	181	1,552	877
Far advanced pulmonary.....	275	100	326	89	496	141	1,483	639
Other and unspecified pulmonary.....	1	4	5	1	13	2	48	43
Pleurisy with or without effusion.....	10	7	7	2	14	2	101	64
Primary infection.....	—	—	—	—	—	—	315	269
Other.....	—	—	—	—	2	—	17	22
Tuberculosis, Other Forms	43	25	26	16	31	22	278	221

¹ Includes age groups not known.

Subsection 2.—Notifiable Disease and Other Health Statistics*

Health statistics collected nationally—in addition to statistics of hospitals dealt with at pp. 239-249—cover notifiable diseases, illness among federal civil servants, and home nursing services. The first two series are dealt with briefly below; the third series is based on the experience of the Victorian Order of Nurses (see p. 271), which is the major home nursing organization in the country. Results of the latter annual survey are available in bulletin form (Catalogue No. 82-202).

Notifiable Diseases.—During 1960 there were considerable increases in the numbers of cases of infectious hepatitis and dysentery. Compared with an average of 3,885 during the 1955-59 period, 6,476 cases of infectious hepatitis (including serum hepatitis) were reported, the provinces principally affected being Nova Scotia and Ontario. For Canada as a whole there were 36.4 cases per 100,000 population, the highest on record. Dysentery cases, which were nearly three times as numerous as the average for the years 1955-59, occurred at the rate of 18.4 per 100,000 population in 1960 compared with a rate of 8.1 in 1959.

There was an apparent downturn in the cyclical curve of scarlet fever and streptococcal sore throat during 1960. However, although the total number of cases dropped to 21,362 from 23,413 in 1959, the pattern was not uniform provincially and higher frequencies in Nova Scotia, Ontario and Saskatchewan offset to some extent the downward trend observed in the other provinces. Other diseases accounting for significant decreases during 1960 were: tuberculosis (including pulmonary), which has continued to decline steadily since 1949; pertussis, which reached a record low rate of 33.8 per 100,000 population; paralytic poliomyelitis, with 909 cases reported as compared with 1,886 in 1959; and meningococcal infections.

The incidence of venereal diseases in Canada has remained fairly constant since 1951 despite the postwar treatment by antibiotics. It is possible that vigorous case-finding programs may be partially responsible for the undiminished numbers. In 1960 there were 759 more cases than the 16,978 reported in 1959. Gonorrhoea was at a higher level than the average of 14,826 infections reported during the period 1949-59 but the more serious disease (syphilis) showed a reduced incidence.

Table 15 shows the reported cases of certain notifiable diseases during 1960, with totals for 1959.

* Prepared in the Public Health Section of the Health and Welfare Division, Dominion Bureau of Statistics.

15.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, by Province, 1960 with Totals for 1959

Inter- national List No.	Disease	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada ¹	
												1960	1959 ²
NUMBERS OF CASES													
	044 Brucellosis (undulant fever).	—	—	—	—	78	28	31	2	2	3	142	141
	764 Diarrhoea of the newborn, epidemic.	—	—	—	—	—	2	22	2	6	24	52	92
	055 Diphtheria	—	—	2	—	15	2	15	7	12	—	53	38
045, 046, 048	Dysentery ³	1	67	108	4	548	507	138	55	356	1,495	3,279	1,416
	046 Amoebic	—	—	1	1	—	—	—	2	—	2	4	2
	045 Bacillary	1	67	1	3	548	507	131	55	153	1,174	2,640	1,238
082.0	Encephalitis, infectious	—	—	—	—	—	2	3	6	2	—	9	15
049.0, 042.1, 049.2	Food poisoning	—	2	64	7	295	2	42	17	66	715	1,216	821
092, N998.5	Hepatitis, infectious (including serum hepatitis)	146	113	1,386	79	343	1,244	555	704	690	912	6,476	4,728
080.2, 082.1	Meningitis, viral or aseptic.	20	—	1	14	281	2	34	11	73	255	690	896
057	Meningococcal infections	8	6	8	9	33	57	9	9	3	16	158	201
766	Pemphigus neonatorum (impetigo of the newborn)	—	2	—	—	2	—	—	3	—	4	7	5
056	Pertussis (whooping cough)	252	42	115	22	2,148	1,531	217	143	580	961	6,014	7,259
080.0, 080.1	Poliomyelitis, paralytic.	49	1	9	92	284	39	13	56	201	165	909	1,886
050, 051	Scarlet fever and streptococcal sore throat	244	1,379	2,206	172	3,450	4,569	320	2,715	4,131	2,175	21,362	23,413
001-019	Tuberculosis ⁴	424	41	234	435	2,663	789	280	294	513	659	6,345	6,579
001, 002	Pulmonary	352	1	184	402	2,575	—	229	216	417	636	4,049	5,175
040, 041	Typhoid and paratyphoid fever	16	1	5	2	223	42	4	2	15	25	335	544
020-039	Venerable diseases ⁴	356	11	509	326	3,143	3,233	1,940	1,470	2,746	3,789	17,737	16,978
030-035	Gonorrhoea	329	7	469	311	2,455	2,537	1,892	1,383	2,560	3,552	15,683	14,826
020-029	Syphilis	27	4	40	15	688	694	48	87	186	235	2,044	2,144
RATES PER 100,000 ESTIMATED POPULATION													
	044 Brucellosis (undulant fever).	—	—	—	—	1.5	0.5	3.4	0.2	2	0.2	0.9	0.8
	764 Diarrhoea of the newborn, epidemic	—	—	—	—	—	2	2.4	2	0.5	1.5	0.5	0.5
	055 Diphtheria	—	—	0.3	—	0.3	4	1.7	0.8	0.9	—	0.3	0.2
045, 046, 048	Dysentery ³	0.2	65.0	14.9	0.7	10.7	8.3	15.4	6.0	27.7	93.1	18.4	8.1
	046 Amoebic	—	—	0.1	0.2	—	—	—	2	—	—	0.1	4
	045 Bacillary	0.2	65.0	0.1	0.5	10.7	8.3	14.6	6.0	11.9	73.1	14.8	7.1
082.0	Encephalitis, infectious	—	—	—	—	—	2	0.3	0.7	2	—	0.1	0.1
049.0, 042.1, 049.2	Food poisoning	1.7	1.9	8.9	1.2	5.8	2	4.7	1.9	5.1	44.5	10.4	4.7
092, N998.5	Hepatitis, infectious (including serum hepatitis)	97.2	109.7	191.7	13.2	6.7	20.4	61.7	77.4	53.8	56.8	36.4	27.1
080.2, 082.1	Meningitis, viral or aseptic.	4.4	—	0.1	2.3	5.5	2	3.8	1.2	5.7	15.9	5.9	5.1
057	Meningococcal infections	1.7	5.8	1.1	1.5	0.6	0.9	1.0	1.0	0.2	1.0	0.9	1.2
766	Pemphigus neonatorum (impetigo of the newborn)	—	2	—	—	2	—	—	0.3	—	0.2	0.1	4
056	Pertussis (whooping cough)	51.9	40.8	15.9	3.7	42.1	25.1	24.1	15.7	45.2	59.8	33.8	41.6
080.0, 080.1	Poliomyelitis, paralytic.	10.7	1.0	1.2	15.3	5.6	0.6	1.4	6.2	15.7	10.3	5.1	10.8
050, 051	Scarlet fever and streptococcal sore throat	53.2	1,338.8	305.1	28.7	67.6	75.0	35.6	298.4	322.0	135.4	120.1	134.2
001-019	Tuberculosis ⁴	92.4	39.8	32.4	72.5	52.2	13.0	31.1	32.3	40.0	41.0	35.7	37.7
001, 002	Pulmonary	76.9	32.0	25.5	67.0	50.4	—	24.5	23.7	32.5	33.4	42.3	49.7
040, 041	Typhoid and paratyphoid fever	3.5	1.0	0.7	0.3	4.4	0.7	0.4	0.2	1.2	1.6	1.9	3.1
020-039	Venerable diseases ⁴	77.6	10.7	70.4	51.3	61.6	53.1	215.8	161.5	214.0	235.9	99.6	97.3
030-035	Gonorrhoea	71.7	6.8	64.9	51.8	48.1	41.7	219.5	152.0	199.5	221.2	88.1	85.0
020-029	Syphilis	5.7	3.9	5.5	2.5	13.5	11.4	5.3	9.5	14.5	14.6	11.5	12.3

¹ Includes the Yukon and Northwest Territories in 1960 and the Yukon in 1959.² Not reportable.³ Includes other cases and cases where type not specified.⁴ Less than 0.05 per 100,000 population.

Illness in the Federal Civil Service.—A study of the incidence and duration of illness among federal civil servants is made annually from data supplied by medical certificates, which are required for all absences of more than three days at one time and for absence of any duration after seven days of casual leave have been taken. During the calendar year 1960, of an estimated 143,200 civil servants covered by Civil Service Leave Regulations, 46,763 reported ill by medical certificate. The number of new illnesses, as certified by medical certificate, was 70,243, somewhat lower than the 75,951 reported for 1959. Similarly, the number of days of completed illnesses decreased to 990,804 in 1960 from the 1,070,084 reported for 1959. Other relevant statistics for 1960 indicate that, on the average, 7.3 working days were lost through illness by each employee, including 4.7 days of certified and 2.6 days of casual sick leave.

Several indices related to sickness absenteeism were calculated from the 1960 survey, based on the number of certified illnesses that occurred at some time during the year but not necessarily completed during the same year. These illnesses totalled 72,138. The severity rate or average number of calendar days per illness was 13.5 and the average number of working days was 9.3. The frequency rate or the average number of illnesses per 100 employees was 50.4. In addition, for each working day during the year, about two of every 100 civil servants were absent on certified sick leave.

16.—Rates per 1,000 Employees of Illnesses and Days of Illness for Federal Civil Servants, by Cause, 1960

(Certified sick leave only)

International List Number	Cause	Rates per 1,000 Employees	
		Illnesses	Days of Illness
		No.	No.
001-138	Infective and parasitic diseases.....	14.1	269.5
140-239	Neoplasms.....	7.5	290.7
240-289	Allergic, endocrine system, metabolic, and nutritional diseases.....	9.6	159.1
290-299	Diseases of the blood and blood-forming organs.....	1.6	42.0
300-326	Mental, psychoneurotic, and personality disorders.....	14.4	413.2
330-398	Diseases of the nervous system and sense organs.....	20.4	305.6
400-468	Diseases of the circulatory system.....	26.3	820.0
470-527	Diseases of the respiratory system.....	202.6	1,477.0
530-587	Diseases of the digestive system.....	75.1	1,059.1
590-637	Diseases of the genito-urinary system.....	24.3	397.7
640-689	Deliveries and complications of pregnancy, childbirth, and the puerperium.....	2.0	25.2
690-716	Diseases of the skin and cellular tissue.....	14.1	156.6
720-749	Diseases of the bones and organs of movement.....	31.9	518.3
750-759	Congenital malformations.....	0.5	16.6
780-795	Symptoms, senility, and ill-defined conditions.....	25.1	312.3
N800-N999	Accidents, poisonings, and violence.....	35.6	562.5
Totals, All Illnesses.....		503.8	6,835.3

PART II.—PUBLIC WELFARE AND SOCIAL SECURITY

Responsibility for social welfare is shared by all levels of government. Costly income-maintenance measures such as old age security and family allowances, and programs such as unemployment insurance and the National Employment Service where nation-wide co-ordination is required, are administered federally. Substantial federal aid is given to the provinces in meeting the costs of social assistance. The Federal Government also provides services for special groups such as Indians, Eskimos and immigrants.

The Department of National Health and Welfare is the agency generally responsible for federal welfare matters; the Departments of Veterans Affairs, Citizenship and Immi-

gration, and Northern Affairs and National Resources also operate important programs. The Unemployment Insurance Commission is responsible for the operation of unemployment insurance and the National Employment Service.

Administration of welfare services is primarily a responsibility of the province but the provision of services is often assumed by local authorities, generally with financial aid from the province.

Section 1. —Federal Government Programs

Subsection 1.—Family Allowances

The Family Allowances Act of 1944 is designed to assist in providing equal opportunity for all Canadian children. The allowances do not involve a means test and are paid entirely from the federal Consolidated Revenue Fund. They do not constitute taxable income but there is a smaller income tax exemption for children eligible for allowances.

Allowances are payable in respect of every child under the age of 16 years who was born in Canada, or who has been a resident of the country for one year, or whose father or mother was domiciled in Canada for three years immediately prior to the birth of the child. Payment is made by cheque each month, normally to the mother, although any person who substantially maintains the child may be paid the allowance on his behalf. Allowances are paid at the monthly rate of \$6 for each child under 10 years of age and \$8 for each child aged 10 or over but under 16 years. If the allowances are not spent for the purposes outlined in the Act, payment may be discontinued or made to some other person or agency on behalf of the child. Allowances are not payable for any child who fails to comply with provincial school regulations or on behalf of a girl who is married and under 16 years of age.

The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital. A welfare section in each regional office deals with welfare questions arising from administration of the allowances. Issuing of the cheques is the responsibility of the treasury division of each regional office, which reports to the Chief Treasury Officer of the Department of Finance attached to the Department of National Health and Welfare. The Regional Director for the Yukon and Northwest Territories is located at Ottawa.

Through the Department of Citizenship and Immigration, the Federal Government pays family assistance, at the rates applicable for family allowances, for each child under 16 years of age resident in Canada and supported by an immigrant who has landed for permanent residence in Canada, or by a Canadian returned to Canada to reside permanently. The assistance, which is paid quarterly and for a maximum period of one year, is not payable for a child receiving family allowances.

1. Family Allowances Statistics, by Province, Years Ended Mar. 31, 1959-61

Province and Year	Families Receiving Allowance in March	Children for Whom Allowance Paid in March	Average Number of Children per Family in March	Average Allowance ¹		Net Total Allowances Paid during Fiscal Year
				Per Family	Per Child	
	No.	No.	No.	\$	\$	\$
Newfoundland.....1959	62,203	192,030	3.09	20.57	6.66	15,162,900
.....1960	63,245	196,447	3.11	20.72	6.67	15,566,372
.....1961	64,464	201,512	3.12	20.91	6.69	15,960,416
Prince Edward Island...1959	13,443	37,426	2.78	18.72	6.72	2,994,334
.....1960	13,648	38,174	2.80	18.83	6.73	3,062,692
.....1961	13,877	38,938	2.80	18.92	6.74	3,124,017
Nova Scotia.....1959	103,105	258,684	2.51	16.79	6.69	20,560,462
.....1960	103,872	261,720	2.52	16.89	6.70	20,932,794
.....1961	104,972	266,629	2.54	17.01	6.70	21,241,829

¹ Based on gross payment for March.

1.—Family Allowances Statistics, by Province, Years Ended Mar. 31, 1959-61—concluded

Province or Territory and Year	Families Receiving Allowance in March	Children for Whom Allowance Paid in March	Average Number of Children per Family in March	Average Allowance ¹		Net Total Allowances Paid during Fiscal Year
				Per Family	Per Child	
	No.	No.	No.	\$	\$	\$
New Brunswick.....1959	80,857	229,505	2.84	19.00	6.69	18,201,518
1960	81,541	232,891	2.86	19.15	6.70	18,588,795
1961	82,440	236,379	2.87	19.25	6.71	18,877,745
Quebec.....1959	688,872	1,848,138	2.69	18.01	6.69	146,278,435
1960	704,831	1,894,276	2.69	18.00	6.70	150,462,531
1961	722,592	1,937,918	2.68	17.99	6.71	154,185,288
Ontario.....1959	870,582	1,922,653	2.21	14.69	6.65	150,186,253
1960	894,046	1,997,413	2.23	14.87	6.65	156,681,500
1961	913,025	2,065,618	2.26	15.08	6.67	162,610,724
Manitoba.....1959	126,989	292,697	2.30	15.34	6.66	23,091,594
1960	128,923	300,305	2.33	15.51	6.66	23,730,766
1961	130,743	308,447	2.36	15.71	6.66	24,384,595
Saskatchewan.....1959	130,210	313,926	2.41	16.03	6.65	24,789,278
1960	131,320	319,788	2.43	16.23	6.66	25,863,936
1961	131,830	325,020	2.46	16.46	6.68	25,848,509
Alberta.....1959	187,561	437,883	2.33	15.51	6.64	34,122,637
1960	193,721	457,672	2.36	15.69	6.64	35,765,854
1961	199,278	477,417	2.39	15.89	6.63	37,365,329
British Columbia.....1959	225,492	488,891	2.17	14.49	6.68	38,409,308
1960	230,549	506,895	2.20	14.72	6.69	39,984,176
1961	233,801	523,637	2.24	14.99	6.69	41,433,470
Yukon and Northwest Territories.....1959	5,267	13,423	2.55	17.21	6.75	990,349
1960	5,568	14,408	2.59	16.44	6.35	1,074,944
1961	5,908	15,619	2.64	16.82	6.36	1,159,725
Canada.....1959	2,492,581	6,035,256	2.42	16.15	6.67	474,787,068
1960	2,551,264	6,219,959	2.44	16.27	6.67	491,214,359
1961	2,602,930	6,397,134	2.46	16.42	6.68	506,191,647

¹ Based on gross payment for March.

Subsection 2.—Old Age Security

The Old Age Security Act of 1952, as amended, provides a universal pension of \$65 a month, (increased from \$55 and effective from Feb. 1, 1962) payable by the Federal Government to all persons aged 70 or over, subject to a residence qualification. To qualify for pension a person must have resided in Canada for ten years immediately preceding its commencement or, if absent during that period, must have been actually present in Canada prior to it for double any period of absence and must have resided in Canada at least one year immediately preceding commencement of pension. Payment of pension may be continued for any period of residence outside Canada if the pensioner has resided in Canada for at least 25 years after attaining the age of 21 or, if he has not, it may be continued for six consecutive months exclusive of the month of departure from Canada.

Until 1959 the pension was financed on a pay-as-you-go method through a 2-p.c. sales tax, a 2-p.c. tax on corporation income and, subject to a limit of \$60 a year, a 2-p.c. tax on taxable personal income. Effective Jan. 1, 1959, the tax on corporation income and, from Apr. 9, 1959, the sales tax were raised to 3 p.c.; the rate on taxable personal income was raised to 3 p.c. with a maximum of \$75 for 1959. Beginning with 1960, the maximum tax on taxable personal income rose to \$90 a year. Taxes are paid into the Old Age Security Fund. If they are insufficient to meet the pension payments, temporary loans or grants are made

from the Consolidated Revenue Fund. The pension is paid from the Consolidated Revenue Fund and charged to the Old Age Security Fund. The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital.

Persons in receipt of old age assistance (see p. 255) who reach age 70 are automatically transferred to old age security. Others make application to the regional office. Recipients of old age security who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

2.—Operations of the Old Age Security Fund, Years Ended Mar. 31, 1957-61

Item	Year Ended Mar. 31—				
	1957	1958	1959	1960	1961
	\$	\$	\$	\$	\$
Revenue	379,111,374	473,859,104	559,279,858	574,887,046	603,131,478
Individual income tax.....	124,999,000	135,001,000	146,350,000	185,550,000	229,400,000
Corporation income tax.....	67,336,000	60,664,000	55,328,000	91,336,000	103,500,000
Sales tax.....	179,270,141	175,792,442	173,622,697	270,000,055	270,231,478
Grant from Consolidated Revenue Fund.....	6,000,000	102,401,662	183,979,162	—	—
Loan from Consolidated Revenue Fund.....	1,506,233 ¹	—	—	28,000,991	—
Expenditure	379,111,374	473,859,104	559,279,858	574,887,046	603,131,478
Benefit payments.....	379,111,374	473,859,104	559,279,858	574,887,046	592,413,283
Excess of revenue over benefit payments	—	—	—	—	10,718,195

¹ Loan from Consolidated Revenue Fund was written off by grant from that Fund in following fiscal year.

3.—Old Age Security Statistics, by Province, Years Ended Mar. 31, 1959-61

Province and Year	Pensioners in March	Net Pensions Paid during Fiscal Year	Province or Territory and Year	Pensioners in March	Net Pensions Paid during Fiscal Year
	No.	\$		No.	\$
Newfoundland.....1959	16,782	11,012,906	Manitoba.....1959	52,066	34,029,850
.....1960	17,008	11,131,339	.....1960	53,284	35,046,515
.....1961	17,379	11,354,705	.....1961	55,278	36,088,676
Prince Edward Island..1959	7,153	4,809,942	Saskatchewan.....1959	53,469	35,099,989
.....1960	7,278	4,823,008	.....1960	55,233	36,311,467
.....1961	7,492	4,944,372	.....1961	57,175	37,572,791
Nova Scotia.....1959	40,395	26,780,353	Alberta.....1959	55,968	36,534,769
.....1960	40,679	27,012,650	.....1960	58,386	38,153,437
.....1961	41,919	27,610,488	.....1961	60,708	39,688,023
New Brunswick.....1959	29,509	19,583,702	British Columbia....1959	108,396	70,769,169
.....1960	29,965	19,906,303	.....1960	111,742	73,155,743
.....1961	30,732	20,350,402	.....1961	115,157	75,451,417
Quebec.....1959	179,829	116,993,184	Yukon and North-west Territories..1959	623	408,856
.....1960	184,500	120,318,812	.....1960	608	411,690
.....1961	191,136	124,321,715	.....1961	626	405,012
Ontario.....1959	310,094	203,257,138	Canada.....1959	854,284	559,279,858
.....1960	317,727	208,616,082	.....1960	876,410	574,887,046
.....1961	327,304	214,625,682	.....1961	904,906	592,413,283

Subsection 3.—Other Federal Government Programs

Unemployment Insurance and National Employment Service.—In 1940, by an amendment to the British North America Act, the Federal Government was given jurisdiction in the field of unemployment insurance and the Unemployment Insurance Act was passed establishing a national system of unemployment insurance which is outlined in Chapter XVI.

The National Employment Service is operated in conjunction with the unemployment insurance scheme. It is administered through local employment and claims offices and supervised by the Department of Labour. Statistics of positions offered and placements made are given in Chapter XVI.

Prairie Farm Assistance.—The Prairie Farm Assistance Act is administered by the Department of Agriculture; a description of the legislation is given in Chapter IX.

Welfare Services for Indians and Eskimos.—The welfare of Indians and Eskimos is administered by the Department of Citizenship and Immigration and the Department of Northern Affairs and National Resources, respectively; this field is covered in the Population Chapter (pp. 145-160).

Section 2.—Federal-Provincial Programs

Subsection 1.—Old Age Assistance

The Old Age Assistance Act of 1952, as amended, provides for federal reimbursement to the provinces for assistance to persons aged 65 or over who are in need and who have resided in Canada for at least ten years or who, if absent from Canada during this period, have been present in Canada prior to the commencement of the ten-year period for double any period of absence. On reaching age 70 a pensioner is transferred to old age security. The federal contribution may not exceed 50 p.c. of \$65 a month (increased from \$55 and effective from Feb. 1, 1962) or of the assistance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of assistance payable, the maximum income allowed and other conditions of eligibility. All provinces use a maximum payment of \$65 a month and the income limits set out below.

For an unmarried person, total income allowed, including assistance, may not exceed \$1,140 a year. For a married couple it may not exceed \$1,980 a year or, when the spouse is blind within the meaning of the Blind Persons Act, \$2,340 a year. Assistance is not paid to a person receiving an old age security pension or an allowance under the Blind Persons Act, the Disabled Persons Act, or the War Veterans Allowance Act.

Recipients of old age assistance who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

4.—Old Age Assistance Statistics, by Province, Years Ended Mar. 31, 1959-61

Province and Year	Recipients in Month of March	Average Amount of Monthly Assistance	P.C. of Recipients to Population Age 65-69	Federal Government Contribution during Year
	No.	\$		\$
Newfoundland.....1959	5,378	53.20	61.11	1,715,386
.....1960	5,377	53.15	61.10	1,736,291
.....1961	5,342	52.78	59.36	1,707,883
Prince Edward Island.....1959	756	44.45	22.24	191,759
.....1960	750	45.69	22.06	204,935
.....1961	801	47.07	23.56	216,870

4.—Old Age Assistance Statistics, by Province, Years Ended Mar. 31, 1959-61—concluded

Province or Territory and Year	Recipients in Month of March	Average Amount of Monthly Assistance	P.C. of Recipients to Population Age 65-69	Federal Government Contribution during Year
	No.	\$		\$
Nova Scotia.....1959	5,485	49.40	27.29	1,611,693
.....1960	5,477	48.82	27.11	1,619,495
.....1961	5,395	48.72	26.71	1,608,129
New Brunswick.....1959	5,795	51.62	37.63	1,829,266
.....1960	5,682	51.33	36.90	1,788,696
.....1961	5,555	51.14	35.84	1,746,572
Quebec.....1959	34,134	51.88	32.23	10,593,250
.....1960	34,312	51.69	31.65	10,688,586
.....1961	35,441	51.43	32.07	10,977,319
Ontario.....1959	22,381	48.96	13.28	6,707,318
.....1960	22,544	48.79	13.15	6,608,363
.....1961	22,736	48.92	13.09	6,629,557
Manitoba.....1959	4,836	51.98	17.27	1,572,890
.....1960	4,998	51.55	17.79	1,580,928
.....1961	5,098	51.40	18.21	1,600,650
Saskatchewan.....1959	5,537	51.35	19.50	1,763,549
.....1960	5,726	50.64	20.30	1,757,281
.....1961	5,727	50.06	20.53	1,769,635
Alberta.....1959	6,096	50.62	19.54	1,877,243
.....1960	6,336	50.52	20.05	1,955,780
.....1961	6,584	49.90	20.77	2,008,821
British Columbia.....1959	7,276	51.96	13.73	2,291,662
.....1960	7,391	51.67	14.21	2,353,789
.....1961	7,322	51.42	14.33	2,332,521
Yukon Territory.....1959	38	55.00	19.90	13,280
.....1960	52	54.90	27.23	14,982
.....1961	48	54.42	25.13	15,957
Northwest Territories.....1959	124	51.20	58.49	39,989
.....1960	128	52.39	60.38	40,267
.....1961	135	52.22	63.68	43,482
Canada.....1959	97,836	50.97	20.91	30,207,284
.....1960	98,773	50.74	21.11	30,349,393
.....1961	100,184	50.56	21.25	30,657,396

Subsection 2.—Allowances for Blind Persons

The Blind Persons Act of 1952, as amended, provides for federal reimbursement to the provinces for allowances to blind persons aged 18 or over who are in need and who have resided in Canada for at least ten years. The federal contribution may not exceed 75 p.c. of \$65 a month (increased from \$55 and effective Feb. 1, 1962) or of the allowance paid, whichever is less. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable and the maximum income allowed. All provinces use a maximum payment of \$65 a month and the income limits set out below.

To qualify for an allowance a person must meet the required definition of blindness and have resided in Canada for ten years immediately preceding commencement of allowance or, if absent from Canada during this period, must have been present in Canada prior to its commencement for a period equal to double any period of absence. For an unmarried person, total income including the allowance may not exceed \$1,380 a year; for a person with no spouse but with one or more dependent children, \$1,860; for a married couple, \$2,340. When the spouse is also blind, income of the couple may not exceed \$2,460.

Allowances are not payable to a person receiving assistance under the Old Age Assistance Act, an allowance under the Disabled Persons Act or the War Veterans Allowance Act, a pension under the Old Age Security Act or a pension for blindness under the Pensions Act.

Recipients of blindness allowances who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

5.—Statistics of Allowances for the Blind, by Province, Years Ended Mar. 31, 1959-61

Province or Territory and Year	Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year
	No.	\$		\$
Newfoundland.....1959	407	54.41	0.201	199,975
.....1960	418	54.15	0.203	200,644
.....1961	422	54.40	0.201	208,131
Prince Edward Island.....1959	87	53.48	0.178	43,338
.....1960	85	53.21	0.170	41,587
.....1961	81	53.63	0.160	39,764
Nova Scotia.....1959	787	53.40	0.215	376,544
.....1960	773	53.51	0.210	378,592
.....1961	786	53.40	0.212	380,911
New Brunswick.....1959	724	53.90	0.256	357,742
.....1960	706	53.88	0.246	348,797
.....1961	696	53.84	0.238	341,686
Quebec.....1959	3,056	54.06	0.118	1,500,856
.....1960	3,012	54.06	0.114	1,493,920
.....1961	2,949	53.90	0.110	1,456,779
Ontario.....1959	1,833	50.75	0.055	867,247
.....1960	1,847	50.27	0.055	839,340
.....1961	1,845	50.51	0.054	840,964
Manitoba.....1959	409	53.51	0.086	198,649
.....1960	396	53.29	0.082	195,336
.....1961	380	53.23	0.078	187,226
Saskatchewan.....1959	417	53.01	0.089	203,034
.....1960	397	53.70	0.084	195,614
.....1961	409	53.20	0.086	196,185
Alberta.....1959	464	53.22	0.072	223,721
.....1960	450	53.43	0.069	223,443
.....1961	461	52.82	0.068	220,820
British Columbia.....1959	530	53.61	0.060	248,774
.....1960	541	53.59	0.061	263,063
.....1961	568	53.26	0.063	269,049
Yukon Territory.....1959	5	55.00	0.069	2,506
.....1960	3	55.00	0.041	1,815
.....1961	3	55.00	0.039	1,485
Northwest Territories.....1959	28	51.96	0.270	12,746
.....1960	34	49.08	0.328	14,936
.....1961	42	50.71	0.375	18,833
Canada.....1959	8,747	53.15	0.094	4,235,131
.....1960	8,671	53.05	0.092	4,197,087
.....1961	8,642	52.97	0.090	4,161,833

Subsection 3.—Allowances for Disabled Persons

The Disabled Persons Act of 1954, as amended, provides for federal reimbursement to the provinces for allowances paid to permanently and totally disabled persons aged 18 or over who are in need and who have resided in Canada for at least ten years immediately preceding commencement of allowance or, if absent from Canada during this period, have been present in Canada prior to its commencement for a period equal to double any period of absence. To qualify for an allowance a person must meet the definition of permanent and total disability set out in the Regulations to the Act which requires that a person must be suffering from a major physiological, anatomical or psychological impairment, verified by objective medical findings; the impairment must be one that is likely to continue indefinitely without substantial improvement and that will severely limit activities of normal living. The federal contribution may not exceed 50 p.c. of \$65 a month (increased from \$55 and effective Feb. 1, 1962) or of the allowance paid, whichever is less. All provinces use a maximum payment of \$65 a month and the income limits set out below. The province administers the program and, within the limits of the federal Act, may fix the amount of allowance payable, the maximum income allowed and other conditions of eligibility.

For an unmarried person, total income including the allowance may not exceed \$1,140 a year. For a married couple the limit is \$1,980 a year except that if the spouse is blind within the meaning of the Blind Persons Act, income of the couple may not exceed \$2,340 a year. Allowances are not paid to a person receiving an allowance under the Blind Persons Act or the War Veterans Allowance Act, assistance under the Old Age Assistance Act, a pension under the Old Age Security Act, or a mother's allowance.

The allowance is not payable to a patient in a mental institution or tuberculosis sanatorium. A recipient who is resident in a nursing home, an infirmary, a home for the aged, an institution for the care of incurables, or a private, charitable or public institution is eligible for the allowance only if the major part of the cost of his accommodation is being paid by himself or any other individual. When a recipient is required to enter a public or private hospital, the allowance may be paid for no more than two months of hospitalization in a calendar year, excluding months of admission and release, but for the period that a recipient is in hospital for therapeutic treatment for his disability or rehabilitation, as approved by the provincial authority, the allowance may continue to be paid. The provincial authority must suspend the payment of the allowance when in its opinion the recipient unreasonably neglects or refuses to comply with or to avail himself of training, rehabilitation or treatment facilities provided by or available in the province.

In the year ended Mar. 31, 1961, disabilities in the two medical classes—mental, psychoneurotic and personality disorders, and diseases of the nervous system and sense organs—were again found to be most prevalent among those persons becoming eligible for an allowance. These classes accounted for 53.9 p.c. of the new cases, the same figure as for the previous year. Diseases of the circulatory system, infective and parasitic diseases, and allergic, endocrine system, metabolic and nutritional diseases increased slightly over the previous year. Diseases of the bones and organs of movement declined while diseases of the respiratory system and neoplasms remained constant. Mental deficiency, the most frequently occurring disability, accounted for just over one-quarter of all cases granted an allowance.

Recipients of disability allowances who are in need may receive supplementary aid under general assistance programs in the provinces. Where the amount of aid is determined through an individual assessment of need, which takes the recipient's requirements and resources into consideration, the Federal Government may share in it under the Unemployment Assistance Act.

6.—Statistics of Allowances for Disabled Persons, by Province, Years Ended Mar. 31, 1959-61

Province or Territory and Year	Recipients in Month of March	Average Amount of Monthly Allowance	P.C. of Recipients to Population Age 20-69	Federal Government Contribution during Year
	No.	\$		\$
Newfoundland.....	1959 980	54.69	0.483	302,224
	1960 1,128	54.56	0.547	348,586
	1961 1,220	54.57	0.581	389,073
Prince Edward Island.....	1959 596	51.28	1.219	169,016
	1960 650	52.73	1.303	197,988
	1961 752	53.03	1.489	230,727
Nova Scotia.....	1959 2,184	52.65	0.596	662,727
	1960 2,484	52.67	0.675	759,333
	1961 2,704	52.78	0.731	847,957
New Brunswick.....	1959 1,734	54.24	0.614	552,338
	1960 1,874	54.20	0.652	596,463
	1961 1,963	54.27	0.672	633,555
Quebec.....	1959 25,352	53.94	0.980	8,362,518
	1960 25,103	54.01	0.951	8,307,354
	1961 24,009	53.95	0.893	7,995,958
Ontario.....	1959 11,469	53.88	0.345	3,485,924
	1960 12,354	53.76	0.365	3,858,355
	1961 13,307	53.66	0.388	4,163,398
Manitoba.....	1959 1,230	54.14	0.258	381,004
	1960 1,376	53.98	0.285	433,097
	1961 1,415	54.07	0.290	455,373
Saskatchewan.....	1959 1,248	54.15	0.266	405,443
	1960 1,337	54.28	0.283	433,211
	1961 1,449	54.21	0.306	464,153
Alberta.....	1959 1,648	53.09	0.254	515,932
	1960 1,702	53.06	0.256	536,720
	1961 1,790	52.92	0.263	556,077
British Columbia.....	1959 1,585	53.98	0.181	490,156
	1960 1,866	54.00	0.211	574,686
	1961 2,017	53.91	0.225	642,536
Yukon Territory.....	1959 2	55.00	0.027	192
	1960 3	55.00	0.041	770
	1961 4	55.00	0.052	1,018
Northwest Territories.....	1959 12	54.58	0.116	2,893
	1960 12	55.00	0.116	3,951
	1961 20	55.00	0.178	5,995
Canada.....	1959 48,040	53.84	0.517	15,330,368
	1960 49,889	53.86	0.528	16,050,514
	1961 50,650	53.80	0.528	16,385,820

Subsection 4.—Unemployment Assistance

Unemployment assistance is a federal grant-in-aid program under which the Federal Government shares with the provinces and their municipalities the costs of general assistance. The general assistance programs in the various provinces are known by different names, such as social allowances, social aid, social assistance and general welfare assistance.

Under the terms of the Unemployment Assistance Act as passed in 1956 and amended with effect from Jan. 1, 1958, the Federal Government may enter an agreement with any province to reimburse it for 50 p.c. of the unemployment assistance expenditures made by the province and its municipalities. All provinces and territories have signed agreements

under the Act. The rates of assistance and the conditions under which assistance is granted are determined by the province or the municipality. Payments to both employable and unemployable persons who are unemployed and in need are shareable under the agreement as are the costs of maintaining persons in "homes for special care", such as nursing homes or homes for the aged. Travelling expenses of persons receiving assistance are shareable when made for purposes specified in the agreement.

The Federal Government shares in additional assistance paid to needy persons in receipt of old age security pensions, old age assistance, blind persons' allowances, disabled persons' allowances and unemployment insurance benefits, where the amount of the assistance paid is determined through an assessment both of the recipient's basic requirements and of his financial resources. The agreement does not cover payments to recipients of mothers' allowances or payments made for medical, hospital, nursing, dental or optical care, drugs or dressings, funeral expenses or costs of administration.

During the year ended Mar. 31, 1961, the Federal Government made payments for unemployment assistance amounting to \$51,520,085. The figures on the federal share of unemployment assistance costs presented in Table 7, however, are based on payments for the months to which the reimbursement claims under the Act relate, namely, the months in which the assistance was actually given to the recipient by the local welfare office. Since the Act allows the provinces to submit claims at any time within six months after the month to which they relate, the figures shown for a fiscal year include certain reimbursements made to the provinces after the end of that year.

7.—Unemployment Assistance, by Province, Years Ended Mar. 31, 1959-61

Province and Year	Recipients ¹ in March	Federal Share of Unem- ployment Assistance Costs ²	Province or Territory and Year	Recipients ¹ in March	Federal Share of Unem- ployment Assistance Costs ²
	No.	\$		No.	\$
Newfoundland.....1959	58,257 ³	3,269,288	Saskatchewan.....1959	15,507	1,492,338
1960	52,505 ³	3,531,046	1960	18,920	1,823,968
1961	51,985 ³	3,413,393	1961	27,286	2,327,294
Prince Edward Island 1959	1,418	97,999	Alberta.....1959	15,824	1,824,821
1960	2,258	122,344	1960	17,636	2,093,849
1961	2,395	155,748	1961	26,388	2,917,607
Nova Scotia.....1959	9,209	448,324	British Columbia...1959	39,103 ³	5,950,272
1960	11,093	718,588	1960	42,870 ³	7,305,454
1961	23,338 ³	1,853,784	1961	86,702 ³	12,241,625
New Brunswick.....1959	7,589	274,491	Yukon Territory....1959	101	6,687
1960	9,077	360,230	1960	147	32,642
1961	30,567 ³	1,494,980	1961	244	31,862
Quebec.....1959	55,145	5,232,860	Northwest Territories.....1959	157	15,765
1960	63,946	7,649,206	1960	174	24,664
1961	175,165	17,155,104	1961	302	19,637
Ontario.....1959	79,385	10,168,345	Canada.....1959	297,760	30,849,721
1960	83,762	11,669,544	1960	322,553	38,201,087
1961	111,235	14,546,044	1961	562,720	59,707,964
Manitoba.....1959	16,065	2,068,531			
1960	20,165 ³	2,869,552			
1961	27,113 ³	3,550,886			

¹ Includes dependants.

² Payment figures shown are for the months to which the claims made under the program relate and include amounts paid to the provinces by the Federal Government after the end of the fiscal year.

³ Includes persons of a class formerly granted aid under a mothers' allowances program.

Subsection 5.—The Fitness and Amateur Sport Program

The federal Fitness and Amateur Sport Act, which was passed on Sept. 25, 1961 and proclaimed on Dec. 15, brings new impetus to the development of fitness in Canada and to efforts to raise the levels of participation and proficiency in competitive and non-competitive sports. The legislation provides for an annual allocation of \$5,000,000 "to encourage, promote and develop fitness and amateur sport". The program operates through three main channels: through grants to national organizations to assist national and international aspects of the program; through grants to the provinces to develop and extend community effort; and through federal co-ordinating and developmental work conducted by the new Fitness and Amateur Sport Division of the Department of National Health and Welfare.

The major task to be undertaken is the building up of training courses for leaders, coaches and other professional personnel at the national, provincial and community levels; the new Act bolsters and enlarges the training programs already in operation in some provinces. Also under the Act, research on such matters as the different aspects of physical performance, the effects of activity on different age groups, and physical development resulting from different types of activity may be greatly extended; knowledge of testing processes may be refined; and surveys of resources, facilities and personnel may be assisted. The urgent need for new and much more extensive informational material for both the professional and the public has long been recognized and under the new program, such instructional material suitable to Canadian needs can be developed through the co-operative efforts of experts in the field.

An important provision of the Act makes possible the award of scholarships, fellowships and bursaries to assist persons undertaking professional studies in physical education, recreation and the medical aspects of fitness. This aid should assist the programs that have already been undertaken by some provinces to overcome acute shortages of trained personnel. Provision is also made for the recognition of achievement in fitness and amateur sport activities through awards and citations.

Because of the ease with which they may be implemented, the provisions of the Act dealing with the promotion and development of Canadian participation in national and international sport competitions received early attention. By the end of the program's first fiscal year, fairly substantial aid had been given to assist such participation. Aid had been given also to the application being made to the International Olympic Committee for the holding of the 1968 Winter Olympic Games at Banff, Alta.

Under the Act, aid may be given to the construction of sports and recreational facilities. In view of the high costs involved in such construction and the almost unlimited demand for new facilities, it is possible that this type of assistance, for the most part, will have to be restricted to the building of national or regional training centres serving wide areas of the population.

Administrative responsibility for the program is vested in the Minister of National Health and Welfare who is advised from the point of view of the private citizen by a National Advisory Council on Fitness and Amateur Sport consisting of thirty persons appointed from across Canada, and from the point of view of the governments directly concerned by a federal-provincial committee of persons at the deputy minister level. Committees of experts advise on technical matters. Thus, a partnership of governments, important non-government agencies and the general public has been formed to develop a truly Canadian program of fitness and amateur sport participation which will embody the views of all.

Section 3.—Provincial Welfare Programs

General assistance and social allowances, including mothers' allowances, with the various welfare services associated with these forms of aid, services for the aged, and child care and protection are major welfare programs governed by provincial welfare legislation.

In most provinces, administrative and financial responsibility for a number of the programs is shared by the provinces and their municipalities. Provincial administration of welfare, as of other provincial assistance, is carried out through the department of public welfare in each province. Several provincial welfare departments have established regional offices for administrative purposes and to provide consultative services to the municipalities.

Significant changes have taken place in provincial programs in the past few years. New or revised legislation or new procedures in a number of provinces have laid the foundation for improved standards of service and administration, and re-appraisal of services is continuing.

In the fields of general assistance or residual aid, a shift has taken place in the administrative and financial responsibility between the provinces and their municipalities. The provinces have assumed a substantial share of the costs and several provinces have broadened the area of social allowances, formerly limited almost entirely to mothers' allowances, in which the municipalities do not share costs. The financial contribution of the Federal Government to the provinces for unemployment assistance (see pp. 259-260) has doubtless been an important contributing factor in these developments.

All provinces are giving some consideration to the need for integrated planning on behalf of older citizens. A number have increased their capital or maintenance grants to municipalities and to voluntary groups for homes for the aged and are also assisting in the construction of low-rental housing projects.

The main efforts in child welfare have been directed toward improvement of standards and greater flexibility of services, with particular emphasis on preventive casework services for children in their own homes, development of specialized children's institutions, and the finding of adoption homes for all children in need of them.

An impressive number of voluntary agencies also contribute to community welfare including the welfare of families and children and of groups with special needs, such as the aged, recent immigrants, youth groups and released prisoners. Family welfare agencies or combined family and child welfare agencies in urban centres, for example, offer casework services to families in need of counselling on such problems as marital relations, parent-child relations and family budgeting. Counselling and recreational services for older or retired people are being developed by many agencies. Child and youth organizations with recreational and character-building programs offer group participation in physical education, camping, the development of special skills and other healthful activity. Welfare councils and community planning councils contribute to the planning and co-ordinating of local welfare services.

Local voluntary agencies and institutions are usually incorporated under provincial law. They may receive public grants, depending on the nature and standard of the services they render, although, with the exception of the semi-public children's aid societies, their main support may be from united funds or community chests, or from sponsoring organizations.

Welfare services, public and private, are hampered by the continued shortage of qualified social workers, although a number of provincial departments and voluntary agencies have granted educational leave with pay or bursaries to enable selected staff to attend schools of social work. Substantial increases in the number of professionally qualified staff may be expected with the development of the five-year program of welfare grants announced by the Federal Government in April 1962. Bursaries, training grants, scholarships and fellowships, and academic and field instruction grants will be available under the General Welfare and Professional Training Grants. Equally important, demon-

stration projects under this Grant and studies under the Welfare Research Grant will be encouraged among the provinces and non-governmental agencies alike, in the organization, co-ordination and staffing of welfare services.

Subsection 1.—Mothers' Allowances

All provinces make provision for allowances to needy mothers who are deprived of the breadwinner and are unable to maintain their dependent children without assistance. These programs have undergone a number of changes in recent years. Eligibility has been extended and benefits have been liberalized. A number of provinces are combining mothers' allowances in a broadened program of provincial allowances to several categories of persons with long-term need. There is a tendency to incorporate this legislation with general assistance within a single Act, while continuing separate administration. In British Columbia, on the other hand, aid to needy mothers is provided under the general assistance program and in the same way as to other needy persons.

Subject to conditions of eligibility which vary from province to province, mothers' allowances or their equivalents are payable from provincial funds to applicants who are widowed, or whose husbands are mentally incapacitated or are physically disabled and unable to support their families. They are also payable to deserted wives who meet specified conditions; in several provinces to mothers whose husbands are in penal institutions, or who are divorced or legally separated; in some, to unmarried mothers; and in Ontario, Quebec and Nova Scotia to Indian mothers. Foster mothers may be eligible under particular circumstances in most provinces. The number of families and children assisted and amounts of benefits paid as at Mar. 31, 1959, 1960 and 1961 are given in Table 8 and rates of benefit as at December 1961 in Table 9.

The age limit for children is 16 years in most provinces, with provision made to extend payment for a specified period if the child is attending school or if he is physically or mentally handicapped. In all provinces applicants must satisfy conditions of need and residence but the amount of outside income and resources allowed and the length of residence required prior to application vary, the most common period being one year. One province has a citizenship requirement.

In each province the relevant legislation is administered by public welfare authorities. In some provinces a Mothers' Allowances Board or Commission makes the final decision regarding eligibility and the amount of allowances granted, or acts in an advisory capacity.

8.—Mothers' Allowances, by Province, as at Mar. 31, 1959-61

Province and Year	Families Assisted	Children Assisted	Payments during the Year Ended Mar. 31
	No.	No.	\$
Newfoundland.....1959	3,770	10,250 ¹	2,859,072 ¹
.....1960	4,024	12,898	3,225,273 ¹
.....1961	4,211	13,676	4,061,239 ¹
Prince Edward Island.....1959	276	729	128,982
.....1960	267	683	130,510
.....1961	256	635	124,099
Nova Scotia.....1959	2,196	5,483	1,887,882
.....1960	2,210	5,153 ¹	1,920,450
.....1961	2,658	6,575	2,166,163
New Brunswick.....1959	2,235	6,495	1,365,075
.....1960	2,213	6,507	1,377,985
.....1961	2,212	6,501	1,398,808

¹ Approximate.

8.—Mothers' Allowances, by Province, as at Mar. 31, 1959-61—concluded

Province and Year		Families Assisted	Children Assisted	Payments during the Year Ended Mar. 31
		No.	No.	\$
Quebec.....	1959	22,403	64,969	18,991,476
	1960	25,778	72,178	20,156,395
	1961	24,895	70,951	19,314,014
Ontario.....	1959	9,433	22,632	11,033,373
	1960	9,722	23,790	12,139,979
	1961	10,149	26,143	12,877,821
Manitoba.....	1959	823	2,263	1,324,993
	1960 ¹	1,209	3,300	1,900,000
	1961 ¹	1,350	3,582	2,072,594
Saskatchewan.....	1959	2,222	5,491	2,030,322
	1960	2,242	5,563	1,949,697
	1961	2,316	5,695	1,957,403
Alberta.....	1959	2,093	4,768	1,857,031
	1960	2,272	5,153	2,084,682
	1961	2,457	5,565	2,273,162
British Columbia ²	1959	..	..	..
	1960	..	..	..
	1961	..	..	..
Canada³	1959	45,451	123,080	41,478,206
	1960	49,937	135,235[*]	44,884,971
	1961	50,504	139,323	46,245,303

¹ Approximate.
of British Columbia.

² Caseload transferred to social assistance; no separate figures are available.

³ Exclusive

9.—Maximum Monthly Rates under Provincial Mothers' Allowances Programs, December 1961

Province	Mother and One Child	Each Additional Child	Disabled Father at Home	Family Maximum	Supplementary
Nfld.....	Food: \$35 or \$37 depending on age of child. Clothing: \$5 for each person. Rent: up to \$20 monthly in rural and to \$30 monthly in urban areas. Fuel: up to \$10.	Food: \$10 for each child under age 16; \$12 for each child age 16 or over. Clothing: \$5.	\$20	None set.	In special circumstances up to \$30 a month additional if necessary for proper support of family.
P.E.I.....	\$45	\$5	No additional allowance granted.	\$125	None granted.
N.S.....	No set maximum; rates are based on average family income for community in which family lives.		Included in budget on which allowance is based.	\$90	None granted.
N.B.....	\$35	\$10	No additional allowance granted.	\$90	Director may grant an additional \$10 for rent if circumstances require it, but only if allowance paid is below maximum.

9.—Maximum Monthly Rates under Provincial Mothers' Allowances Programs, December 1961
—concluded

Province	Mother and One Child	Each Additional Child	Disabled Father at Home	Family Maximum	Supplementary
Que.....	\$75	\$10	\$10	None set (minimum granted \$5).	A supplementary \$5 may be paid to a beneficiary incapable of working. Where need exists a special monthly allowance may be paid under the Quebec Public Charities Act through the municipality or a social agency. The cost is met by the province.
Ont.	\$120 for mother or father and one child. \$30 for one child living with foster mother.	\$16 for 2nd child \$14 for 3rd child \$12 for 4th child \$10 for 5th child \$8 for 6th child. \$25 for 2nd foster child \$15 for each additional foster child.	Included in budget on which allowance is based.	\$180	An increase in food allowance may be granted on medical recommendation. A fuel allowance of up to \$24 a month may be granted from Sept. 1 to Mar. 31. An increase of 20 p.c. in fuel allowance may be granted under special circumstances.
Man.....	Food, Clothing and Personal Needs: \$52-\$64 depending on age of child. Shelter: rent to \$55, or taxes, insurance and minor repairs up to \$20, principal and interest on mortgage or agreement for sale up to \$55 less taxes. Utilities: up to \$7.	\$14 for child up to 3 years \$16 for child 4-6 years \$21 for child 7-11 years \$26 for child 12-18 years (subject to deductions for 4th and each additional child).	\$25	None set.	\$10 for rent if necessary. Housekeeper service as required. Fuel allowance for eight months. For special needs not covered by basic schedule items, up to \$150 a year.
Sask.....	Food, Clothing, Household and Personal Needs: \$51.80-\$67.00 depending on age of child. Rent: \$40 Fuel: up to \$15.15 Utilities: up to \$11.	\$17.40 for pre-school child \$24.35 for child 6-11 years \$29.30 for child 12-15 years \$32.60 for child 16-18 years (subject to reductions for fourth and each additional person).	\$31.50	None set.	Special food allowance may be granted on medical recommendation. An allowance for a housekeeper may be granted if necessary.
Alta.....	Food and Clothing: \$44.80-\$67.65 depending on age and sex of child. Rent, Fuel, Utilities: according to community standards.	\$13.40 for food and clothing for infant under 1 year. \$11.30-\$26.65 for food for child 1-20 years depending on age and sex. \$5-\$9.60 for clothing for child 1-20 years depending on age and sex.	\$30.30	None set.	An additional allowance may be granted under special circumstances.
B.C.....	Allowances to needy mothers provided under the Social Assistance Act, and not separable.				

Subsection 2.—General Assistance

All provinces make legislative provision for general assistance on a means-test basis to needy persons and their dependants who cannot qualify for other forms of aid, and some provinces include those whose benefits under other programs are not adequate. This

assistance, with some exceptions, is administered by the municipality with substantial financial support from the province. In most provinces assistance is given for food, clothing, shelter and utilities, but it may also include incapacitation or rehabilitation allowances, post-sanatorium allowances, maintenance costs of boarding or nursing-home care, counselling and homemaking services.

The provincial departments of public welfare have regulatory powers over municipal administration of general assistance. Several provinces recommend rates of assistance as a guide to municipalities and some specify rates at which payments must be made if a municipality is to qualify for provincial reimbursement. Specified standards of administration may also be a requirement. The province may take the responsibility for aid in unorganized areas and for the cost of aid to certain categories of persons, such as transients.

With the introduction of reimbursement plans designed to equalize municipal responsibility, British Columbia and Saskatchewan abolished municipal residence requirements. In 1960, Quebec also abolished municipal residence requirements with the reorganization of the assistance program. In other provinces, the residence of the applicant, as defined by statute, determines the financially responsible authority. Under the federal Unemployment Assistance Act, all provinces have agreed that residence shall not be a condition of assistance for applicants who come from other provinces. For persons without the required length of residence (usually one year) in a province, aid may be given by the province or the municipality, for which a chargeback may or may not be made to the municipality or province of residence.

Under the Unemployment Assistance Act, also, the Federal Government shares in the cost of aid to needy unemployed persons to the extent of 50 p.c. of costs as set out in the Act (see pp. 259-260). The federal share is based upon the amount expended for aid by the provinces and their municipalities, with reimbursement being made to the provinces, which make their own arrangements with the municipalities for provincial-municipal sharing of costs. These vary as follows. In Newfoundland, such assistance is the responsibility of the province and is administered by the Department of Public Welfare. In Prince Edward Island, the Department of Welfare and Labour provides direct social assistance in rural areas and assumes 75 p.c. of the cost of assistance granted by the City of Charlottetown and the incorporated towns and villages; the Department also operates a province-wide program of financial aid to families where the breadwinner is suffering from tuberculosis and is unable to support the family. In Nova Scotia, social assistance is administered by the municipality, which receives reimbursement from the Department of Public Welfare for two-thirds of the cost of assistance given and one-half of the cost of administration. In New Brunswick, the province reimburses each municipality to the extent of one dollar per capita of the population plus 70 p.c. of expenditures on general assistance in excess of that amount, and also pays 50 p.c. of the cost of administration.

In Quebec, the province reimburses municipal departments or authorized agencies for the full cost of aid to persons in their own homes and administers aid to persons who are unfit for work for at least 12 months and, since Sept. 1, 1961, gives supplementary allowances to needy recipients of government benefits and allowances to needy widows and spinsters 60-65 years of age. The cost of aid to unemployable persons in homes for special care, including nursing homes, is borne two-thirds by the province and one-third by the institution.

In Ontario, the Department of Public Welfare reimburses municipalities, up to a prescribed maximum, for 80 p.c. of their expenditures on aid to needy persons and on incapacitation allowances for single needy handicapped residents.

The Social Allowances Act of Manitoba, passed in 1959, transferred from the municipalities to the province responsibility for administering and financing aid to mentally or physically incapacitated persons whose disability is likely to last more than 90 days, and to persons unable to work because of their age. Aid to other needy persons, termed 'indigent relief', remains under the municipalities. The Department of Public Welfare reim-

burses the municipalities to the extent of 40 p.c. of the costs, or at a higher rate if costs exceed a specified amount. In Saskatchewan, through the Department of Social Welfare and Rehabilitation, the province reimburses the municipalities for approximately 93 p.c. of the cost of assistance granted to needy persons. The municipalities are assessed annually on a per capita basis for about 7 p.c. of the over-all cost of social aid, and the province reimburses each municipality for all actual expenditures. In Alberta, the province reimburses the municipalities for 80 p.c. of the value of the assistance given. Under Part III of the Public Welfare Act, proclaimed effective June 1, 1961, the province is responsible for allowances for persons who are incapable of supporting themselves because they are mentally or physically handicapped for a period likely to continue for more than 90 days, and for persons who because of their age are not able to be self-supporting. Allowances for needy mothers with dependent children are also now payable under this Act. The Department of Public Welfare maintains two hostels and one welfare centre to care for unemployable single homeless men without municipal domicile.

The Province of British Columbia, through the Department of Social Welfare, reimburses the municipalities on a pooled basis for 90 p.c. of the total cost of social assistance to needy persons. Also, the province shares equally with the municipalities expenditures on salaries of social workers; a municipality with fewer than 15,000 persons may arrange to have the Department undertake social work within the municipality and reimburse it at the rate of 30 cents per capita per year.

Subsection 3.—Services for the Aged

In all provinces, homes for the aged and infirm are provided under provincial, municipal or voluntary auspices. Voluntary homes generally are provincially inspected in accordance with prescribed standards and in some provinces must be licensed. Most provinces contribute to the maintenance of elderly persons in homes for the aged, either through general assistance or through statutes that relate particularly to these homes. Also, 50 p.c. of the payments on behalf of assistance cases in homes for the aged and infirm (homes for special care) are met by the Federal Government (see pp. 259-260).

Several provinces make capital grants toward the construction of homes, and in four provinces capital grants are also available to municipalities, voluntary organizations, or limited-dividend companies for the construction of low-rental housing.

Newfoundland maintains a home for the aged and infirm at St. John's and also pays, in whole or in part, the cost of maintaining needy old people in homes for the aged and boarding homes. In 1955, a grant of 20 p.c. of costs, to be paid over a ten-year period, was made to a religious organization for the construction of a home, and provision is made for grants to similar projects under other auspices. The province is authorized by the Senior Citizens (Housing) Act, 1960 to guarantee the repayment of loans made under the National Housing Act to limited-dividend companies constructing hostels or housing for the elderly. Payment of the cost of operating hostels or housing projects may also be guaranteed. The aged and infirm in Prince Edward Island are cared for in two institutions operated by the Department of Welfare and Labour. In Nova Scotia, the aged are cared for in municipal or county homes, in homes operated by religious or private organizations and in private boarding homes. The province reimburses the municipalities for two-thirds of their expenditures for the maintenance of needy persons in municipal homes, subject to compliance with specified standards of care and accommodation. Homes for the aged receiving aid from the provincial government are subject to provincial inspection. Homes for the aged in New Brunswick are operated under municipal, religious, fraternal and private auspices and receive no direct financial support from the province. Voluntary and proprietary homes are subject to provincial licensing and inspection and must meet standards contained in regulations under the Health Act. Under the Social Assistance Act, 1960, the province contributes to the maintenance of needy persons in municipal homes.

Institutional care for indigent old people in Quebec is provided through charitable institutions under the Public Charities Act. The Homes for the Aged Act authorizes the province to erect and maintain homes for the aged and housing projects, or to make grants to voluntary organizations for this purpose. Standards in homes are governed by regulations under the Public Health Act.

Under the Ontario Homes for the Aged Act, municipalities must provide institutional or boarding-home care for the aged. The province contributes 50 p.c. of the costs of constructing approved homes and 70 p.c. of their net operating and maintenance costs. It also pays up to 70 p.c. of the costs of maintenance in approved boarding homes. Homes for the aged under voluntary auspices are approved, inspected and assisted under the Charitable Institutions Act, which provides for grants in aid of construction equalling 50 p.c. of costs up to \$2,500 per bed and maintenance grants of 75 p.c. of the amount spent by the organization up to \$3.40 per day for each resident. The Elderly Persons Housing Aid Act provides for grants to limited-dividend housing corporations building low-rental housing for elderly persons.

Institutions and boarding homes for the aged and infirm in Manitoba are supervised and licensed by the Department of Health and Public Welfare under public health legislation. Under the Elderly Persons Housing Act, the province makes construction grants to municipalities and charitable organizations equalling one-third of the costs of constructing or acquiring and renovating housing accommodation and homes for the aged. Grants may not exceed \$1,400 for one-person housing units; \$1,667 for two-person housing units; \$1,200 per bed for new homes for the aged; and \$700 per bed for homes that have been renovated. Under the Social Allowances Act, 1959, the province bears the entire cost of assistance to those who, because of age or incapacity, require care for more than 90 days by another or in a home for the aged.

Aged and infirm persons in Saskatchewan are cared for in four provincial nursing homes and in voluntary homes for the aged. The latter are inspected and licensed under the Housing Act. This Act also empowers the province and municipalities to subscribe to the stock of limited-dividend housing companies building low-rental accommodation for older persons; the province may also make loans to municipalities to assist them in subscribing. Capital grants amounting to 20 p.c. of construction costs and maintenance grants of \$40 per bed per year may be made to municipalities, churches or charitable organizations sponsoring approved homes or housing projects. Costs of maintaining needy persons in homes for the aged are shared by the province and the municipalities under the Social Assistance Act.

Under what are termed 'master agreements', the Province of Alberta bears the cost of constructing and equipping homes for the aged and housing units on municipal land. Projects are operated by provincially incorporated foundations which include municipal councilmen in their membership; net costs of operation are borne by the municipalities. The province also meets up to 80 p.c. of the cost incurred by municipalities for the maintenance of elderly persons in housing projects and municipal or private homes. Private homes are municipally licensed.

The Province of British Columbia operates a home for elderly homeless men, a provincial infirmary for the chronically ill and, for senile and psychotic patients, three provincial homes for the aged. It also licenses and supervises homes for the aged and boarding homes and, where necessary, shares with the municipalities on a 90-10 basis the cost of maintaining needy residents. Under the Elderly Persons Housing Aid Act, the province makes grants amounting to one-third of construction costs to municipalities and non-profit corporations, including religious and service organizations, engaged in building homes or low-rental housing units for elderly citizens.

Subsection 4.—Child Care and Protection

Child welfare services, which include child protection and care, services for unmarried parents and adoption services, are provided in all provinces under provincial legislation and are administered by some central authority, usually a division of child welfare within

the department of welfare. Except in Quebec, where the province does not administer services directly, the program may be administered by the provincial authority itself or the responsibility may be delegated under provincial child welfare Acts to local children's aid societies, that is, to voluntary agencies with boards of directors, operating under charter and under the general supervision of provincial departments. In Quebec, child welfare services are administered by recognized voluntary agencies and institutions, religious and secular. In Newfoundland, Prince Edward Island, Saskatchewan and, to a large extent, in Alberta, they are administered by the province; in the larger urban centres of Alberta there is some delegation of authority to the municipality. In Ontario and New Brunswick, a network of local children's aid societies, operating under statutory authority, is responsible for the services. In Nova Scotia, Manitoba and British Columbia, services are administered by local children's aid societies in the heavily populated areas and by the province in other areas.

Children's aid societies and the recognized agencies in Quebec receive substantial provincial grants and sometimes municipal grants and in many areas they also receive support from private subscriptions or from community chests or united funds. Maintenance costs for children in care of a voluntary or public agency may be borne entirely by the province—as in Alberta, Manitoba, Prince Edward Island and Newfoundland—or partly by the municipality of residence and partly by the province.

The child welfare agencies, whether provincial offices or authorized private agencies, have the authority to investigate cases of alleged neglect and, if necessary, to apprehend a child and to bring the case before a judge upon whom rests the responsibility of deciding whether in fact the child is neglected. When neglect is proven, the court may direct that the child be returned to his parent or parents, under supervision, or be made a ward of the province or a children's aid society or, in Quebec, be placed under the authority of a suitable person or agency. The appropriate agency is then responsible for making arrangements to meet the needs of the child in so far as community resources permit. The services may involve casework with families in their own homes, or care may be provided in foster boarding homes, in adoption homes or, for children who need this form of care, in selected institutions. Children placed for adoption may be wards or they may be placed on the written consent of the parent. Special efforts, which are meeting with considerable success, are being made to find suitable homes for children found difficult to place for adoption because of age, disability or ethnic differences. Adoptions, including those arranged privately, number about 13,000 annually.

Child welfare agencies make use of the small selective institution for placement of children who are forced to be away from their own homes for a short period or who may need preparation for placement in foster homes, and also for teen-age children who may find it easier to fit into a group setting than into a foster home. A growing number of institutions are meeting this demand for special care by a reduction in size or reorganization into small units and by the introduction of training courses for staff and other measures for the improvement of standards. The development of small, highly specialized institutions, which function as treatment centres for emotionally disturbed children, is of particular significance. Institutions for children are governed by provincial child welfare legislation or by special statutes dealing with welfare institutions, and by provincial or municipal public health regulations. The institutions are generally subject to inspection and in some provinces to licensing, and are usually required to make reports to the province on the movement of children under their care. Sources of income may include private subscriptions, provincial grants, and maintenance payments on behalf of children in care, payable by the parents, the placing agency, or the responsible municipal or provincial department.

Services to unmarried parents include casework services to the mother and possibly to the father, legal assistance in obtaining support for the child from the father, and foster-home care or adoption services for the child. If necessary, support for unmarried mothers may be obtained under general assistance programs. In many centres, homes for unmarried mothers are operated under private or religious auspices.

Day nurseries for the children of working mothers are established only in the larger centres and chiefly under voluntary auspices. Licensing is required in five provinces but Ontario is the only province with a Day Nurseries Act. This sets out standards for operation and licensing to be met by all agencies offering day-care services and provides for provincial reimbursement of one-half of the operating and maintenance costs of municipally sponsored day nurseries, which are established in most of the industrial centres in that province.

PART III.—NATIONAL VOLUNTARY HEALTH AND WELFARE ACTIVITIES

A number of national voluntary agencies carry on important work in the provision of health and welfare services, planning research and education. These agencies, some of which are described below, supplement the services of the federal and provincial authorities in many fields and play a leading role in stimulating public awareness of health and welfare needs and in promoting action to meet them.

The Canadian Welfare Council.—The Council, established in 1920, is a national voluntary association of English- and French-speaking organizations and individual citizens whose aim is the advancement of social welfare in Canada. Member organizations include community funds and councils, other private social agencies, various federal, provincial and municipal departments, and citizen groups and individuals active in the fields of health, welfare and recreation. It furnishes authoritative information, technical consultation and field service in the main areas of social welfare and provides a means of co-operative planning and action by public and private agencies.

The policies and programs of the Council are determined by its members under the leadership of a nationally representative board of governors. Aided by professional staff, the members work together through Divisions of Family and Child Welfare, Public Welfare, Corrections, and Community Funds and Councils, and through special committees on such subjects as welfare of immigrants, and aging. Services of the Council include public relations and research. The Council publishes periodicals entitled *Canadian Welfare*, *Bien-Être Social Canadien* and the *Canadian Journal of Corrections*, a directory of Canadian welfare services, pamphlets, and division bulletins.

The Canadian Diabetic Association.—Formed in 1953 with headquarters in Toronto, the Association has 25 branches in various parts of the country and a French-language affiliate, Association du Diabète, in Quebec. The aims of the organization are to promote public education regarding diabetes, to detect unrecognized cases, to teach diabetics self-care and to conduct research. The branches support various services such as free diet counselling and summer camps for diabetic children and adults, and hold 'model schools' or institutes from time to time in many cities.

The Canadian Red Cross Society.—Established in 1896 in Canada, the Society is affiliated with the International Red Cross and has branches in all ten provinces with national headquarters in Toronto. Its objectives, defined in its Charter, are "... in time of peace or war to carry on and assist in work for the improvement of health, the prevention of disease and the mitigation of suffering throughout the world". Red Cross Society activities are very broad, ranging from national and international disaster relief services to the support of local projects. One of the major activities in Canada is the operation of a national blood transfusion service, which includes collecting and supplying free of charge, for hospital use, blood provided by voluntary donors. The Society also maintains outpost hospitals, nursing stations and emergency units in several provinces and provides an arts and crafts program and other welfare services in veterans hospitals. The Junior Red Cross promotes health education through its schoolroom branches across Canada; it supports a special fund to supply treatment to indigent handicapped children in Canada and a fund to promote understanding among school children of different countries.

The Canadian Foundation for Poliomyelitis and Rehabilitation.—The Foundation was formed in 1948 to assist poliomyelitis victims but in 1958, because of the protection against poliomyelitis afforded by Salk vaccine, it broadened its scope to initiate projects for the rehabilitation of persons disabled by other diseases. Through chapters organized in ten provinces the expanded program, financed mainly by the March of Dimes, supports treatment facilities in hospitals and rehabilitation centres and provides direct services to disabled persons in need of treatment, training and other personal aid. Other aims of the Foundation are to carry out public education and research concerning disabling conditions and to assist in the training of professional personnel. Recent projects have included the organization of anti-polio vaccination clinics, transport of iron lungs and the formation of iron lung pools, and case-finding surveys in various provinces. The national office is in Montreal. Close liaison has been developed with the Canadian Council for Crippled Children and Adults.

Victorian Order of Nurses.—Since its inception in 1897, the Victorian Order of Nurses has provided a professional home nursing and health counselling service to patients with any type of illness and regardless of their financial status. In all provinces except Prince Edward Island, the association's nurses carry out bedside nursing and prenatal, post-natal and newborn care under medical direction with emphasis upon chronic conditions. In some provinces they also assist provincial health authorities in tuberculosis and venereal disease programs and conduct child health clinics. In 1961, the Order employed about 650 nurses in 117 branches whose services are available to over one-third of Canada's population. The national office is in Ottawa.

The Canadian National Institute for the Blind.—Since 1918 the Canadian National Institute for the Blind has been the only national agency providing a complete social welfare service to the blind and prevention services to the visually impaired. The national office, located in Toronto, supports the eight regional divisions covering all provinces and the 49 local branches serving 24,131 registered blind persons and 84,066 prevention cases in 1961. Through its Eye Service, free to those in need of assistance, the Institute arranges for eye examinations and pays for medical treatment, glasses and visual aids; it also supports the operation of several Low Vision Aid Clinics and seven Eye Banks in the main cities. Social, vocational, recreational and educational services for the blind are provided at 19 service centres to which workshops and residences are attached. Home teachers visit the newly blinded of all ages including pre-school-age children to teach them independence in daily living and other skills such as Braille, typing and handicrafts. Placement officers furnish vocational counselling and arrange for training and employment. Where possible the blind are placed in jobs in general industry, in the 460 CNIB concession stands and canteens, or in farming and small businesses; others are gainfully employed in the Institute's industrial and sheltered workshops. The National Library circulates Braille magazines, books and recordings and supplies a transcription service to students.

The Health League of Canada.—The Health League of Canada, first established in 1918 as a National Committee for Combating Venereal Disease, now embraces about 75 national member-associations supporting a wide variety of public health education activities to prevent disease and raise health standards. Its standing committees are concerned with various aspects of public health such as immunization, milk pasteurization, fluoridation of water, industrial health, nutrition, gerontology and other fields. The program is administered from a national office in Toronto, usually working through the affiliated organizations. Educational efforts include the provision of speakers for meetings and the preparation of radio scripts, health education films and literature; a magazine *Health* is published bi-monthly and weekly news bulletins are released to the press. The League also sponsors National Health Week and National Immunization Week.

St. John Ambulance Association.—The Order of the Hospital of St. John of Jerusalem began as a local unit in Montreal in 1884 and was incorporated on a national basis in 1910. The organization is composed of two parts—the St. John Ambulance Association and the St. John Ambulance Brigade. The first is devoted to teaching first aid and home nursing and is used extensively by Civil Defence, Armed Forces, workmen's compensation and industrial personnel, and the latter to directing the emergency corps of trained personnel. The Brigade maintains first aid posts at large public gatherings and operates ambulance services in several provinces. Headquarters of the Association is in Ottawa, with provincial divisions in nine provinces controlling their own programs and financing the operation of their local branches.

The Canadian Tuberculosis Association.—Founded in 1900 to increase treatment facilities for tuberculosis patients, the Association's objective is the control and ultimate eradication of tuberculosis. The national office in Ottawa along with the ten provincial associations and 175 local branches co-operate with the public health agencies in promoting adequate facilities for prevention, diagnosis, treatment and rehabilitation. The provincial associations assist in case-finding by means of mass X-ray and tuberculin testing surveys of specific areas and groups, and carry out extensive health education work; most associations also participate in follow-up and rehabilitation of ex-patients. Publication of educational materials and periodicals and organization of the annual Christmas Seal campaign, the principal source of funds, is centred in the national office, which makes its consultant services available to federal and provincial health departments.

The National Cancer Institute of Canada.—The National Cancer Institute, composed of persons representing professional societies and agencies concerned with cancer research and therapy, was founded in 1947 to develop a nationally co-ordinated research and professional education program. The Institute promotes fundamental research through selected projects in universities, hospitals and research centres, maintains a Canadian Tumour Registry, provides training fellowships and, in co-operation with the Canadian Medical Association and medical schools, promotes professional education on cancer topics. The Institute receives support from federal and provincial grants and from the Canadian Cancer Society; research work on lung cancer is being supported by the Canadian tobacco industry.

The Canadian Hearing Society. Organized in 1940 as the National Society of the Deaf and the Hard of Hearing, the Society operates chiefly in Toronto and the surrounding area. It is concerned with the preservation of hearing, the treatment of deafness and the provision of rehabilitation services for those with impaired hearing, including war veterans and children. It provides otological examinations, counselling, vocational guidance and job placement services for the deaf or hard-of-hearing, and hearing aids to indigent persons.

The Canadian Mental Health Association.—Since its organization in 1918 as the National Committee for Mental Hygiene, the Association has initiated numerous measures to promote mental health and the best possible care of the mentally ill. Its program of public education, professional and lay training, services to the mentally ill, consultative services and research is carried out by the national office in Toronto, nine provincial divisions and 91 community branches. To develop public understanding of mental health principles, the Association sponsors discussion groups and prepares a variety of educational materials including films for the press, radio and television and for professional personnel. Services to mental patients have grown rapidly as branches have established information and referral centres in 36 communities, volunteer hospital visiting programs, White Cross rehabilitation centres and other personal services for patients and their families. Through various studies of mental health problems and the National Mental Health Research Fund, set up in 1957, the Association has stimulated new approaches to prevention and treatment in this field.

The Canadian Cancer Society.—Organized in 1938 to co-ordinate voluntary activities and disseminate knowledge in the cancer field, the Canadian Cancer Society operates in all provinces and has its national office in Toronto. Its services include a public education program, welfare services such as transportation, home nursing and cancer dressings to needy persons, and fellowships to medical graduates for advanced study in cancer. Voluntary subscriptions to the Society provide the major source of funds for the basic research program of the National Cancer Institute of Canada. The Society also sponsors clinical research projects and supports the establishment of new research facilities.

The Canadian Heart Foundation.—The Canadian Heart Foundation was formed in 1947 by physicians to co-ordinate research and disseminate information. Its membership consists of lay and medical individuals and organizations interested in promoting research on cardiovascular diseases and in both public and professional education. Medical research projects are financed by voluntary donations to the Canadian Heart Fund as well as by federal and provincial grants. The Foundation's national office is in Toronto; provincial divisions have been established in eight provinces.

The Canadian Paraplegic Association.—The Association was formed in 1945 by a group of paraplegic veterans to ensure provision of adequate treatment and rehabilitation facilities for all persons suffering paralysis caused by disease or injury. Through its national office in Toronto and five regional divisions, the Association's program covers medical and vocational services, prosthetic appliances and personal aids and other activities to promote the social well-being of paraplegics. A comprehensive rehabilitation service is provided at Lyndhurst Lodge Retraining Centre in Toronto, owned by the Association, and other care by arrangement with a number of general and veterans hospitals and rehabilitation centres. The Association, in turn, furnishes special services to veterans and workmen's compensation cases on a repayment basis.

The Canadian Council for Crippled Children and Adults.—The Council was established in 1937 to co-ordinate and support activities for the care and rehabilitation of physically handicapped children. The first provincial organization was formed in Ontario in 1922 and similar organizations, which have remained autonomous, now exist in all provinces. In 1954 the scope of the Council's interests was broadened to include the adult handicapped and, with the establishing of a national office in Toronto headed by an executive director of the Council, has since sponsored various projects in the areas of prevention, research and public education. Programs in the provinces vary, ranging from case-finding, establishment of cerebral palsy clinics and children's rehabilitation centres and operation of summer camps to payment for treatment services, prosthetics and other services. In most provinces, service clubs raise funds to support the work of the organization, particularly through the sale of Easter Seals.

The Canadian Arthritis and Rheumatism Society.—Established in 1948 to promote research, professional education and treatment services in the field of rheumatism and arthritis and to disseminate authoritative information, the Society has branches operating in all provinces except Prince Edward Island and Newfoundland; its national office is in Toronto. Medical advisory boards in each of the eight provinces and one at the national level give advice and guidance to the provincial and national directors. The Society sponsors an educational program both for the general public and for physicians and maintains out-patient clinics in general hospitals for the treatment of low-income patients. Its branches have pioneered in the operation of mobile physiotherapy units, numbering 75, which bring treatment to home-bound patients and in four provinces the branches support a mobile consultative service. All divisions have liaison with employment agencies and vocational training schemes. Nearly 12,000 patients were treated in 1960 free of charge or at a nominal fee. The national body promotes research projects in various universities and institutions and provides clinical fellowships to physicians in all parts of Canada.

Multiple Sclerosis Society of Canada.—The Society has been organized since 1948 to support research in multiple sclerosis and allied diseases and to educate the public on the social problem of multiple sclerosis. Its 20 local chapters located in eight provinces raise funds mainly for research but they also provide welfare services to patients in need of wheel chairs and other personal aids. Grants for eight research projects and fellowships, administered from the national office in Montreal, amounted to over \$46,000 in 1960.

The Canadian Association for Retarded Children.—The Association, incorporated in 1958 to assist and give co-ordinated direction to the work of a growing number of organizations for the mentally retarded, is represented by ten provincial and about 175 local groups. Membership of the local groups exceeds 11,000, most of whom are parents of mentally retarded children. The Association promotes the establishment of clinics, day schools, institutions, workshops, and recreational programs; it also supports and encourages research into the causes of mental deficiency. Increasing numbers of day classes offer training opportunities within the community for mentally retarded children who are not acceptable for regular school instruction. Financial support comes from local fund-raising campaigns, community chests and, in varying degrees, from provincial departments of education. The national office is in Toronto.

The Muscular Dystrophy Association of Canada.—This Association was organized in 1954 to stimulate and unify research efforts into the cause, nature and treatment of muscular dystrophy and related diseases and to promote the establishment of facilities for diagnostic, consultative and treatment services. Under the direction of a national office in Toronto supported by 19 local chapters, its chief activity is the support of basic and applied research projects in medical schools and other centres across the country. In addition to raising funds for research projects, local chapters provide various patient services including personal aids, appliances and transportation.

Voluntary Medical Insurance.—Almost 8,200,000 Canadians, or 47 p.c. of the population of Canada, had some protection against the costs of physicians' services at the end of 1959. Their protection was provided by some 63 non-profit plans and at least 46 private companies. Non-profit enrolment was 4,900,000 while private companies provided surgical coverage to 3,800,000; overlapping enrolment in the two groups amounted to about 500,000. The 8,200,000 net total was 2,300,000 above the 1955 figure, which represented only 38 p.c. of the population.

The non-profit plans took in \$99,600,000 in premiums and \$1,600,000 in other revenue in 1959, paying out \$88,500,000 in benefits and \$8,800,000 for administration, leaving a surplus of \$3,800,000. Thus for every dollar of premiums, 89 cents were paid out in benefits. Benefit payments of non-profit plans amounted to \$18.21 per person covered in 1959. In 1955 benefit payments were \$41,400,000, which also represented 89 cents of the premium dollar but amounted to only \$13.17 per person.

Profit-making private companies offer several classes of health protection—surgical, medical and major medical. Because surgical enrolment is most widespread and because an individual often must take out surgical insurance to be eligible for the other kinds, the surgical enrolment figure is regarded as indicative of total private enrolment. Benefit payments in all classes amounted to \$42,300,000 in 1959, or \$11.05 per person. In 1955, the total was \$19,300,000 and the ratio \$6.25.

PART IV.—VETERANS SERVICES*

The Department of Veterans Affairs administers most of the legislation making up the Veterans Charter and provides administration facilities for the Canadian Pension Commission which administers the Pension Act and the Civilian War Pensions and Allowances Act; for the War Veterans Allowance Board which is responsible for the administration of the War Veterans Allowance Act; and for the Secretary-General (Canada) of the Commonwealth War Graves Commission.

* Prepared by the Department of Veterans Affairs, Ottawa.

The main benefits now provided to veterans consist of medical treatment for those eligible to receive it, land settlement and home construction assistance, educational assistance for children of the war dead, veterans insurance, general welfare services, unused re-establishment credit, disability and widows' pensions, and war veterans allowances.

The work of the Department, excepting the administration of the Veterans' Land Act, is carried out through 17 district offices and five sub-district offices in Canada and one district office in England. There are eight Veterans' Land Act district offices and 32 regional offices established to administer the benefits of the Act.

Section 1.—Treatment Services

Treatment Activity.—The Department of Veterans Affairs, through its Treatment Services Branch, provides medical, dental and prosthetic services for entitled veterans throughout Canada. Service is also provided for members of the Armed Forces, the Royal Canadian Mounted Police, and the wards of other governments or departments at the request and expense of the authorities concerned.

The primary responsibility of the Branch is to provide examination and treatment to disability pensioners for their pensionable disabilities. Other main groups of veterans receiving treatment are War Veterans Allowance recipients, veterans whose service and need make them eligible for domiciliary care, and veterans whose service and financial circumstances render them eligible for free treatment, or at a cost adjusted to their ability to pay. If beds are available, any veteran may receive treatment in a departmental hospital on a guarantee of payment of the cost of treatment. The pensioner receives treatment regardless of his place of residence, but service to other veterans is available in Canada only. Where departmental facilities are not available, the eligible veteran may receive treatment at the expense of the Department in an outside hospital by a doctor of his own choice.

Under the federal-provincial hospital insurance program, DVA hospitals are recognized for the provision of insured services to veterans. Arrangements have been made for the payment of any necessary premiums on behalf of veterans who are in receipt of War Veterans Allowances. The Veterans Treatment Regulations remain the authority for the treatment of veterans (and others) in DVA institutions and elsewhere under departmental responsibility, regardless of whether or not the hospitalization is at the expense of the insurance plan.

Departmental hospitals provide base-hospital facilities for the treatment of members of the Armed Forces. Ste. Foy Hospital near Quebec City and Sunnybrook Hospital at Toronto have self-contained units but in the other institutions there is a close integration of patients. The units, which are staffed by Armed Forces personnel, utilize the ancillary services of the hospital and also provide training facilities for members of the medical services of the Armed Forces.

Patient load for the year ended Dec. 31, 1961 was as follows:—

<i>Item</i>	<i>No.</i>
Admissions to departmental hospitals.....	53,024
Admissions to other hospitals.....	17,951
TOTAL ADMISSIONS.....	70,975
Patient-days in departmental hospitals.....	2,577,089
Patient-days in other hospitals.....	875,618
TOTAL PATIENT-DAYS.....	3,452,707
Out-patient visits to departmental hospitals.....	402,450
Out-patient visits to other departmental clinics.....	87,751
Out-patient visits to doctor-of-choice.....	320,214
TOTAL OUT-PATIENT VISITS.....	810,415
Number of veterans treated under the Doctor-of-Choice Plan.....	109,505

Medical Staff and Training Programs.—Many of the professional staffs of active treatment hospitals are employed on a part-time basis; in the main they are recommended for appointment by the Deans of Medicine of the universities with which the hospitals are affiliated. Most members of the medical staff are engaged in teaching and private practice, and hold appointments on the medical faculties of the various universities.

In its active treatment institutions, the Department maintains medical teaching programs which are considered essential to attract highly qualified professional men and thus ensure the highest quality of medical care. All active treatment hospitals have been approved by the Royal College of Physicians and Surgeons of Canada for postgraduate teaching in medicine and surgery, and the majority are approved also for advanced postgraduate training in the various specialties. An intern-resident program is in effect and, at the end of 1961, 282 residents and interns were in training, together with 141 interns in occupational therapy, physiotherapy, psychology, laboratory, and medical social services.

During 1961, 91 departmental employees attended courses, assisted fully or partly by the research and education vote. In addition, nursing assistants were trained at a school located at Camp Hill Hospital in Halifax. This school has an annual capacity of 70 graduates who are offered employment in departmental hospitals across the country.

Medical Research.—During 1961, there were 85 projects in progress under the Clinical Research Program. The program is varied but in the main deals with conditions affecting aging, which the Department is in a special position to investigate. Self-contained Clinical Investigation Units have been set up in active treatment hospitals located at Montreal, Toronto, London, Winnipeg and Vancouver.

Hospital Facilities.—Treatment is provided in 11 active treatment hospitals located at Halifax, N.S., Saint John, N.B., Quebec City, Montreal and Ste. Anne de Bellevue in Quebec, Toronto and London in Ontario, Winnipeg, Man., Calgary, Alta., and Vancouver and Victoria, B.C.; also in two convalescent centres and two homes maintained for the provision of domiciliary care. The rated capacity of these institutions at Dec. 31, 1961 was 8,918 beds. An additional 662 beds were available in veterans pavilions situated at Ottawa, Regina and Edmonton. Pavilions are owned by the Department but are operated by the parent hospital, and medical staff is provided by the Department.

Progress continues to be made toward the provision of a nation-wide chain of modern fire-resistant institutions through replacement of obsolete accommodation. In October 1944, the Department of Pensions and National Health was reorganized and became the Department of National Health and Welfare and the Department of Veterans Affairs. At that time under the Pensions Branch of the old Department there were the following hospitals: *Camp Hill* at Halifax, N.S.; *Lancaster* at Saint John, N.B.; *Savard Park* at Quebec City and *Ste. Anne's* at Ste. Anne de Bellevue, Que.; *Christie Street* at Toronto and *Westminster* at London, Ont.; *Deer Lodge* at Winnipeg, Man.; *Colonel Belcher* at Calgary, Alta.; and *Shaughnessy* at Vancouver, B.C. Many of these institutions were either older buildings that had been remodelled or buildings of frame construction built toward the end of or immediately after World War I. In the intervening years they had become obsolescent in design and, being constructed of less permanent materials, had deteriorated and required considerable maintenance.

To meet the anticipated needs for World War II veterans and to improve the standard of hospital accommodation under the control of the Department, a program of work was initiated. In addition, because of immediate requirements, some temporary accommodation was constructed and existing buildings in various parts of the country were taken over and adapted to hospital use. The maximum number of beds provided was during the year 1946-47 when there was a total of 13,544 in 48 institutions. Since that time there has been a steady decline in the number of institutions operated and the number of available beds.

During the fiscal years 1944-45 to 1960-61, inclusive, some \$72,242,505 was spent on construction of all kinds. This included not only major construction but alterations and smaller additions to existing institutions. Table 1 shows the principal projects completed and occupied since the Department of Veterans Affairs came into being.

**1.—Principal Veterans Hospital Projects Completed and Expenditures Thereon,
Years Ended Mar. 31, 1945-62**

Fiscal Years	Location	Institution and Project	Amount
1944-45	Saint John, N.B.....	Lancaster Hospital—St. James Wing, 122 beds.....	226,487
	Ste. Anne de Bellevue, Que.....	Ste. Anne's Hospital—new kitchen, dining room and stores building.....	183,048
	Ottawa, Ont.....	Ottawa Civic Hospital—Veterans Pavilion, 158 beds and services.....	344,440
	Winnipeg, Man.....	Deer Lodge Hospital—three-storey extension for clinical wing.....	132,283
	Calgary, Alta.....	Colonel Belcher Hospital—extension for admission and discharge, auditorium, and 12 beds.....	578,478
1945-46	Ottawa, Ont.....	Rideau Health and Occupational Centre—170 beds.....	462,559
	Toronto, Ont.....	Christie Street Hospital—additional accommodation.....	456,969
	Winnipeg, Man.....	Academy Road—purchase of building for Veterans Home, 128 beds.....	148,000
	Winnipeg, Man.....	Deer Lodge Hospital—two pavilions, 195 beds.....	499,458
	Edmonton, Alta.....	University Hospital—two pavilions for veterans, 239 beds and services.....	472,000
	Vancouver, B.C.....	Shaughnessy Hospital—addition to administration wing.....	482,314
1946-47	Ste. Anne de Bellevue, Que.....	Ste. Anne's Hospital—additional accommodation for mental patients, 264 beds.....	792,529
	London, Ont.....	Westminster Hospital—Western Counties Health and Occupational Centre, 178 beds.....	544,351
	Regina, Sask.....	Regina General Hospital—new wing for veterans, 186 beds.....	267,962
	Burnaby, B.C.....	George Derby Health and Occupational Centre—215 beds.....	583,265
	Vancouver, B.C.....	Shaughnessy Hospital—chest unit, 130 beds.....	603,311
1947-48	Saint John, N.B.....	Lancaster Hospital—Ridgewood Health and Occupational Centre, 100 beds.....	344,826
	Senneville, Que.....	Health and Occupational Centre—200 beds.....	771,930
	Toronto, Ont.....	Sunnybrook Hospital—two treatment units, 400 beds.....	2,897,393
	Winnipeg, Man.....	Deer Lodge Hospital—Health and Occupational Centre (later abandoned).....	303,234
	Victoria, B.C.....	New Veterans Hospital—200 beds.....	1,088,011
1948-49	Halifax, N.S.....	Camp Hill Hospital—new active treatment building, 200 beds and services.....	2,358,491
	Toronto, Ont.....	Sunnybrook Hospital—Health and Occupational Centre, 100 beds.....	867,637
	Toronto, Ont.....	Sunnybrook Hospital—two treatment units and services, 972 beds.....	6,876,142
	Toronto, Ont.....	Sunnybrook Hospital—nurse and staff residences.....	3,116,390
	Winnipeg, Man.....	Deer Lodge Hospital—new service buildings, etc.....	509,901
	Vancouver, B.C.....	Shaughnessy Hospital—addition to operating room suite.....	185,684
1949-50	Halifax, N.S.....	Camp Hill Hospital—remodelling of Pavilion "A", 68 beds.....	219,327
	London, Ont.....	Westminster Hospital—new mental infirmary and services, 225 beds.....	3,842,741
1950-51	Toronto, Ont.....	Sunnybrook Hospital—additional small units.....	1,317,724
	Edmonton, Alta.....	Purchase of Government House for Veterans Home—75 beds.....	350,000
1951-52	Ste. Anne de Bellevue, Que.....	Ste. Anne's Hospital—reconstruction of power house.....	255,019
	Montreal, Que.....	Queen Mary Veterans Hospital—plans for additional accommodation (project deferred).....	223,074
	Victoria, B.C.....	Veterans' Hospital—new wing, 66 beds.....	387,548
1952-53	Ste. Anne de Bellevue, Que.....	Ste. Anne's Hospital—sewage pump house.....	104,131
1953-54	London, Ont.....	Westminster Hospital—laundry, standby generator and incinerator.....	182,703

**1.—Principal Veterans Hospital Projects Completed and Expenditures Thereon,
Years Ended Mar. 31, 1945-62—concluded**

Fiscal Years	Location	Institution and Project	Amount
1954-55	Saint John, N.B.	Lancaster Hospital—additions and alterations, additional 50 beds and services	2,997,732
	Quebec, Que.	Ste. Foy Hospital—new hospital, 325 beds	7,020,605
	Montreal, Que.	Queen Mary Veterans Hospital—extension to out-patient department	689,087
	Ste. Anne de Bellevue, Que.	Ste. Anne's Hospital—alterations, accommodation for TB patients, 100 beds	208,819
	London, Ont.	Westminster Hospital—active treatment pavilion annex, additional storey, 20 beds	127,048
1956-57	Calgary, Alta.	Colonel Belcher Hospital—new wing and facilities, 225 beds	3,294,318
1957-58	Halifax, N.S.	Camp Hill Hospital—prosthetic services building	120,841
	Saint John, N.B.	Lancaster Hospital—laundry	248,982
	Vancouver, B.C.	Shaughnessy Hospital—power house, prosthetic service and maintenance building	1,000,387
1958-59	Toronto, Ont.	Sunnybrook Hospital—air conditioning and piped oxygen system to operating room and recovery suites	420,843
	London, Ont.	Westminster Hospital—stores building	142,342
	Winnipeg, Man.	Deer Lodge Hospital—new wing—replacement of temporary accommodation, 300 beds	3,533,055
1959-60	Victoria, B.C.	Veterans' Hospital—prosthetic service and maintenance workshops	175,399
1960-61	Vancouver, B.C.	Shaughnessy Hospital—new wing, 314 beds	4,380,424
1961-62 ¹	Montreal, Que.	Queen Mary Veterans Hospital—modernization and enlargement of power plant	533,000
	Ste. Anne de Bellevue, Que.	Ste. Anne's Hospital—replacement of laundry	438,731
	London, Ont.	Westminster Hospital—new wing and services, 300 beds	6,500,000
	Vancouver, B.C.	Shaughnessy Hospital—new laundry building	227,407
	Vancouver, B.C.	Shaughnessy Hospital—therapeutic pool and exercise building	320,771

¹ Completed by Mar. 31, 1962 or scheduled for completion before the end of the year. Final costs estimated for incomplete projects.

Dental Services.—Dental treatment is provided for those pensioned veterans whose disability would be alleviated by such treatment, for War Veterans Allowance recipients and for other persons whose health care is the responsibility of the Department; these include Royal Canadian Mounted Police personnel and, on occasion, members of the Canadian Armed Forces. Treatment is also provided at the request of other departments of the Canadian Government, as well as at the request of other governments.

The Department employs 36 dentists on a full-time basis and one on a half-time basis and also utilizes the services of three dental consultants on a part-time basis. Twenty dental clinics are maintained in departmental hospitals or centres across Canada, and elsewhere the services of private dentists on a fee-for-service basis are utilized.

Since 1918, many departmental dental officers have participated in postgraduate and refresher courses in the various specialties of the profession through the auspices of the Department; they have also participated actively in giving clinics and papers at various national and regional dental conventions, and four hold teaching positions on the staffs of Dental Faculties in Canada.

Treatment provided by the Department in 1960-61 continued to show an increase over the preceding year and consisted of some 126,055 operations for approximately 20,000 patients.

Prosthetic Services.*—The Department operates a Prosthetic Service which is responsible for the supply and maintenance of prostheses, orthopaedic appliances and

* A more comprehensive explanation of the operation of Prosthetic Services is contained in the 1961 Year Book, pp. 291-292.

sensory aid devices to veterans and other persons eligible for treatment under the Veterans Treatment Regulations. Those appliances are issued only upon departmental medical prescription and are supplied and serviced without charge to eligible patients. The Department also extends prosthetic service upon request, on a repayment basis, to other Federal Government departments, to allied governments, to provincial governments under certain conditions, and to workmen's compensation boards.

The physical establishment consists of a main factory at Toronto and 12 district manufacturing and fitting centres located in Departmental hospitals throughout Canada. District prosthetic technicians extend the service to five sub-districts through regular weekly or monthly visits. The Toronto factory manufactures certain prostheses, appliances and component parts, conducts bulk purchasing of raw materials for distribution to other centres, provides advanced instructional courses for district staff, maintains a research section staffed by engineers and technicians, and accepts, when necessary, referrals of cases for whom routine fitting procedures are considered inadequate.

During 1961 the Research Section conducted field tests on two new prostheses which emanated from the United States National Research Council research and development program, both of which resulted in favourable patient acceptance—the patellar tendon prosthesis for below-knee amputations and the hydraulically controlled prosthesis for above-knee amputations; the former is manufactured by the Department and the latter is commercially available. These prostheses were added to the departmental line for regular supply. Research continued on plastic coatings, colouring of laminated plastic, walking and transfer jigs for manufacturing and fitting purposes, improved processing of cosmetic gloves, functional hand splints, a new cervical brace, an arm abduction brace, an all-laminated plastic above-knee prosthesis, and other items.

During the year, approximately 165,000 basic appliances, accessories and repairs were issued to 86,000 patients.

Section 2.—Welfare Services

The Welfare Services Branch not only has specific responsibilities with respect to the administration of statutory benefits designed to assist veterans and their dependants, but may be asked for advice and help in any kind of problem that does not come under the jurisdiction of another Branch of the Department. Since the type of assistance that can be rendered directly is limited by statute, Branch personnel are required to maintain close liaison with and have a detailed knowledge of sources of assistance in the community such as welfare departments at all levels of government, private philanthropic agencies, veterans' organizations, etc. These contacts enable the Branch not only to make prompt and accurate referrals when required but to act as a channel through which the Department becomes aware of situations in which it can assist.

The workload of the Branch remains at a high level, although the time limit for some benefits designed to assist with immediate postwar rehabilitation of veterans has almost expired. Among these are the payment of war service gratuities authorized by the War Service Grants Act, which provides cash payments for each veteran of World War II, the amount varying with his length of service and the area in which it was performed. This benefit was discontinued on Dec. 31, 1954, except for veterans with overseas service who may be paid if the Minister is satisfied that there is good reason for delay in making application. A veteran who served outside Canada and the United States with the Korean Special Force has 15 years after discharge from that Force in which to apply for gratuities. During 1961, 24 awards of gratuity were authorized for a total value of \$12,154.

The Awaiting Returns Allowance is another form of benefit that has almost expired. This is now available only to veterans who have been established in full-time farming under the Veterans' Land Act. Application must be made within 12 months of settlement and allowances are payable for a maximum of 52 weeks within two years of the time of the initial award. During 1961, total payments of this benefit amounted to \$15,873 and there were 17 active accounts at the end of the year.

Re-establishment Credit.—This benefit is authorized under Part II of the War Service Grants Act. It is equal in each case to the War Service Gratuity, less the supplementary gratuity paid for overseas service. Except for balances of \$50 or less, it is not paid in cash to the veteran but is released on his behalf for specified purposes. World War II veterans have until Sept. 30, 1962,* and veterans qualified on the basis of service with the Korean Special Force have 15 years from the date of their discharge from that Force to apply for this benefit. At the end of 1961, unused re-establishment credit balances totalled \$11,063,692. The amounts paid during 1960 and 1961, with cumulative totals to Dec. 31, 1961, are shown in Table 2.

2. —Re-establishment Credits Paid, by Required Purpose, 1960 and 1961, with Cumulative Totals

Purpose	1960	1961	Cumulative Totals to Dec. 31, 1961
	\$	\$	\$
Homes	1,450,904	1,101,754	243,835,548
Purchased under National Housing Act.....	4,696	3,718	3,354,129
Purchased other than under National Housing Act.....	32,147	23,351	32,568,405
Repairs, etc.....	191,326	157,059	17,248,207
Furniture and equipment.....	1,188,527	880,986	186,064,107
Reduction of mortgage.....	34,208	36,640	4,600,700
Business	287,430	212,446	56,181,984
Purchase of a business.....	699	1,488	3,680,901
Working capital.....	28,551	23,722	25,351,049
Tools and equipment.....	258,180	187,236	27,150,034
Miscellaneous	1,218,568	867,604	13,056,192
Insurance, annuities, etc.....	421,764	257,079	10,169,426
Special equipment for training.....	10,295	8,799	766,270
Clothing.....	333,284	346,265	988,880
Reimbursements.....	453,225	255,461	1,131,616
Totals	2,956,902	2,181,804	313,073,724

Casualty Rehabilitation.—The function of the casualty welfare program is outlined in the 1956 Year Book, p. 307. At Dec. 31, 1961, there were 2,537 active cases. The total number of disabled veterans then registered was 48,691 and of these 46,151 were closed cases. New cases opened during 1961 numbered 810 and cases closed numbered 2,359.

* Legislation amended March 1962 to change date to Oct. 31, 1968.

3. —Registrations for Casualty Rehabilitation, by Status of Applicant and Type of Disability, to Dec. 31, 1961

Status	Registrants to—		Type of Disability	Active Cases as at Dec. 31, 1960	Total Closed Cases Dec. 31, 1960	Active Cases as at Dec. 31, 1961	Total Closed Cases Dec. 31, 1961
	Dec. 31, 1960	Dec. 31, 1961		No.	No.	No.	No.
Employed.....	37,918	38,208	Amputations.....	104	2,320	85	2,349
Unemployed.....	786	728	Neuro-muscular and skeletal system.....	957	13,938	828	14,282
Receiving treatment, training or other services.....	1,221	982	Total and partial loss of hearing or sight.....	177	3,276	168	3,342
Rehabilitation not feasible.....	4,576	4,710	Neurological cases.....	137	1,687	89	1,740
Closed on WVA.....	2,439	2,733	Heart and vascular system.....	170	1,168	162	4,442
Left Canada.....	1,299	1,330	Respiratory.....	831	11,844	658	12,099
			Mental and emotional.....	200	1,653	184	1,739
			Unclassified.....	438	6,039	363	6,161
Totals	48,239	48,691	Totals	3,014	45,225	2,537	46,154

Social Services.—The Social Service Division of the Department maintains a small corps of trained social workers who are employed in a variety of ways. They act primarily as consultants to other staff in dealing with problems of social adjustment affecting veterans and their dependants, or give direct service in complex cases. They are especially concerned with maintaining liaison, for referral purposes, with welfare departments at all levels of government and with other philanthropic agencies. They assist in the work of the War Veterans Allowance District Authorities and other departmental committees concerned with welfare matters and also supervise Branch services to dependants of members of the Armed Forces. On request by the Department of National Defence, the Division furnishes reports on home circumstances of service personnel who encounter some domestic emergency. When the problem cannot be solved by counselling or referral to a source of help in the community, these reports assist the Department of National Defence in deciding whether compassionate leave, posting or discharge is indicated. During 1960 and 1961, the Social Service Division handled 13,629 and 12,405 requests, respectively, for service from all sources. This reduction was attributable to staff shortages rather than to a decrease in demand for services.

Assistance Fund (WVA).—The Assistance Fund (War Veterans Allowances) Regulations authorize supplementary payments to recipients under the War Veterans Allowance Act (pp. 288-290) who are living in Canada and are in need and whose incomes are lower than the maximum allowed by that statute. Assistance may be given as a continuing monthly grant in accordance with a formula which includes costs of shelter, fuel, food, clothing, personal care and certain health needs, or as single grants to meet emergencies. Amendments to the Act, effective June 1, 1961, required a review of every case in receipt of the continuing monthly Assistance Fund grant. The formula used in determining monthly grant requirements was also reviewed and the dollar value of individual items increased in accordance with price index changes since the previous review in 1957. Certain monthly grants had to be adjusted because basic allowances were increased from \$70 to \$84 and from \$120 to \$144 for single and married recipients, respectively. However, because of a corresponding increase in income ceilings, more assistance could be provided where need was evident. The maximum annual supplement available was raised from \$240 to \$288 for single recipients and from \$300 to \$360 for married recipients.

The administration of the Fund is directed by a committee, of which the Deputy Minister is chairman. Applications are dealt with and grants authorized by district authorities in local offices of the Department in accordance with general instructions issued by the Assistance Fund Committee. The following statement summarizes activity of the Fund during 1960 and 1961. Since monthly grants may be continued from year to year, the number of persons assisted in a given period is greater than the number applying.

<i>Item</i>		<i>1961</i>	<i>1960</i>
Persons assisted.....	No.	19,695	19,558
Persons applying during year.....	"	5,333	7,051
Applicants assisted.....	"	4,599	6,303
Proportion of applicants assisted.....	p. c.	86	89
Fund expenditures during year.....	\$	2,883,269	2,964,757
Proportion of expenditures given in monthly grants.....	p. c.	92	91
Persons in receipt of continuing monthly grants.....	No.	13,206	15,290

Older Veterans.—Details of the Department's work on behalf of the aging veteran population are given in the 1961 Year Book, pp. 294-296. During 1961 there were no significant changes in the services and benefits available to older veterans and their dependants. The co-operation and goodwill of industrial and commercial organizations and the hiring policy of government agencies have resulted in the Corps of Commissionaires being able to maintain its position as the largest Canadian employer of older war veterans. Officials of the Welfare Services Branch of the Department continue to participate actively with agencies and committees dealing with the problems of older citizens and veterans.

Training for Veterans.—The period of eligibility for training under the Veterans Rehabilitation Act for World War II veterans and under the Veterans Benefit Act for those who served overseas during the Korean operation has expired except for a few special cases. However, the Pensioners Training Regulations provide a continuing authority for the training of pensioned veterans and of ex-members of the peacetime forces with disabilities attributed to military service. These Regulations enable a pensioner who, because of his disabilities, cannot continue in a former line of work to qualify for another occupation. At Dec. 31, 1961, trainees on strength totalled 43, of whom 18 were registered in vocational and 25 in university courses.

Educational Assistance to Children of War Dead.—The Children of War Dead (Education Assistance) Act provides, for eligible children, substantial aid to defray the costs of post-secondary school education. Entitlement is limited to four academic years, or 36 months, whichever is the lesser.* This is designed to provide assistance up to a first university degree, or completion of training for occupations such as registered nurse. Fees are limited to a maximum of \$500 for any one student in any one academic year, which parallels costs payable on behalf of veterans training under the Veterans Rehabilitation Act. Training allowance during actual attendance on course is \$25 a month up to age 21. If the student is still eligible for training after age 21, when payment of pension ceases, the allowance is increased to \$60 a month.† All benefits cease at the end of the academic year in which the student attains age 25.‡

As early as October 1945, attention was directed to the plight of children made fatherless by World War II, when a brief on the subject was presented by the Dominion Command, Canadian Legion, to the Special Committee on Veterans Affairs. As time passed, interest continued to grow. The Nov. 20, 1948 meeting of the Advisory Committee on University Training for Veterans included in its agenda "ways and means of assuring educational opportunity for sons and daughters of veterans who either lost their lives in the War or who are in receipt of total disability pensions". Canada's sole provision at that time was continuation of pension to age 21, if the child remained in school or university. On Feb. 8, 1951, the Advisory Committee recommended "payment of tuition fees plus an allowance which, added to pension, would provide \$60 a month while the son or daughter of a veteran who died as a result of war service was in actual attendance in a post-secondary institution of higher learning". Action on this recommendation was deferred pending the report of the Royal Commission on National Development in the Arts, Letters and Sciences (the Massey Commission). It was considered that if this report resulted in a sufficient supply of adequate scholarships to aid all pensioned children who qualified academically, the proposed legislation to be administered by DVA would be unnecessary. This did not occur and by 1952 firm plans were being formulated which resulted in the passage of the Children of War Dead (Education Assistance) Act, effective July 1, 1953.

Under the Act, the amount payable for each student during an academic year was calculated to approximate the value of the scholarships recommended in the report of the Massey Commission. The original Act limited post-secondary school assistance to students who were eligible for pension because of the war-connected deaths of their fathers. It authorized the payment of fees and costs up to \$500 for any one academic year and an allowance of \$25 per month for the lesser of four academic years or 36 months of training. In September 1958 the Act was amended to include some children previously excluded on technical grounds and to increase the allowance to \$60 a month to eligible students after the cessation of pension at age 21. It also brought in students whose fathers lost their lives as a direct result of peacetime military service. These amendments increased the number of eligible children and extended the life of the Act indefinitely. Children excluded from original calculations are becoming eligible because of the deaths of pensioned veterans.

* Effective June 1, 1962, extension permissible at Ministerial discretion.

† Legislation amended March 1962 to change amount to \$79 a month.

‡ Legislation amended March 1962 to change maximum age to 30 years, effective June 1, 1962.

Students and mothers or guardians are given full benefit of the counselling and guidance services which the Department developed to help veterans adjust to civilian life after World War II. The object is to ensure, as far as possible, that every student possessing entitlement under the Act will attain maximum educational development consistent with his native ability.

Beneficiaries under this statute have attended or are attending every major university or post-secondary institution in Canada. Many have already repaid the investment of public funds in their education, not only through professional service to the community but through their increased personal contribution to taxation made possible by higher earnings.

When the Act was under consideration it was expected that an over-all total of 1,150 children would benefit at a cost of less than \$2,500,000 spread over approximately 16 years. However, from July 1, 1953 to Dec. 31, 1961, expenditures totalled \$2,421,115—\$1,270,960 in fees and \$1,150,155 in allowances. Total applications approved numbered 2,541, of which 1,226 were for males and 1,315 for females. Of the total of 2,541 approved, 254 were deferred (conserved entitlement for later, more expensive, academic years or held for repetition of failed years), 20 were suspended (for brief absence from training), and 611 were discontinued (training ceased for any reason other than completion). Table 4 shows progress and results of the program to the end of 1961.

4.—Post-Secondary School and University Trainees under the Children of War Dead (Education Assistance) Act, by Sex and Type of Training, as at Dec. 31, 1961

Course or Faculty	Completed		In Training		Total
	Males	Females	Males	Females	
	No.	No.	No.	No.	No.
Post-Secondary School—					
Business administration.....	4	1	5	—	10
Commercial art and design.....	3	1	3	1	8
Nursing (Reg. Nurse).....	—	204	1	146	351
Secretarial.....	—	14	—	12	26
Teaching.....	13	97	11	32	153
Technology—					
Chemical.....	3	—	4	—	7
Electrical.....	2	—	2	—	4
Electronic.....	6	—	8	—	14
Laboratory.....	—	8	—	6	14
X-ray.....	—	6	—	1	7
Other.....	8	2	11	—	21
Other.....	2	2	—	3	7
Totals, Post-Secondary Schools.....	41	335	45	201	622
University—					
Arts and science.....	43	84	124	107	358
Agriculture.....	2	1	17	—	20
Engineering and applied science.....	52	—	92	—	144
Education.....	28	49	108	124	309
Commerce and business administration.....	30	4	50	11	95
Dentistry.....	1	—	9	1	11
Medicine.....	7	2	23	8	40
Social work.....	1	10	6	22	39
Theology.....	3	1	14	—	18
Totals, University.....	167	151	443	273	1,034

Vetcraft.—A short history of Vetcraft is given in the 1959 Year Book, p. 293. Sheltered workshops are now operated at Toronto and Montreal providing full-time employment for a number of veterans and widows and, in addition, small assembly work is done in Winnipeg, Regina and Calgary providing part-time home employment for other workers. Production for the year 1961, which was sold entirely to the Dominion Command of the Royal Canadian Legion, amounted to 6,569,847 poppies and 67,960 memorial wreaths and crosses.

Returned Soldiers' Insurance.—The Returned Soldiers' Insurance Act (SC 1920, c. 54 as amended) provided eligibility to contract for life insurance at rates comparable with those available commercially, but the medical standard required of applicants was much lower than was otherwise acceptable. Applications were accepted from 1920 to 1923 and from 1928 to 1933. No policies have been issued since Aug. 31, 1933. On Dec. 31, 1961, of the total of 48,319 policies issued, there remained 8,618 policies in force for a face amount of \$18,231,794.

Veterans Insurance.—The Veterans Insurance Act (RSC 1952, c. 279 as amended) provides eligibility to contract for life insurance* to veterans of World War II, those who served in the action in Korea and certain other groups. The maximum amount of insurance that may be obtained is \$10,000. This Act makes it possible for veterans unable to meet the required medical standards of the usual commercial life insurance companies to obtain insurance. The intent of the legislation is the protection of the immediate dependants of the veteran. There are no occupational restrictions and the contract provides for a waiver of premiums, without extra cost, where a veteran becomes totally and permanently disabled.

Of the 51,772 applications received to Dec. 31, 1961, 87 were declined for medical reasons. Of the 49,960 policies issued to Dec. 31, 1961, 30,848 for a face amount of \$96,876,349 remained in force, 13,147 had been surrendered for their cash values, 2,920 terminated by lapse and extended term insurance expiry and 3,045 terminated by death.

5.—Death Claims Intimated to Dec. 31, 1961

Year	Returned Soldiers' Insurance		Veterans Insurance	
	No.	\$	No.	\$
1921-55.....	10,588	22,163,088	1,135	3,189,320
1956.....	434	813,743	216	590,868
1957.....	447	842,608	225	639,048
1958.....	486	902,324	254	687,145
1959.....	436	835,327	283	806,546
1960.....	462	928,255	357	1,096,010
1961.....	422	867,230	364	947,148

Section 3.—Land Settlement and Home Construction

The Veterans' Land Act provides for the settlement of veterans of World War II and the Special (Korean) Force under five broad categories: farming as a full-time occupation; part-time farming in rural or semi-rural areas to supplement income from other employment; commercial fishing; land settlement, generally in pioneer areas, under agreements between the Federal Government and the provinces; and home building on city-size lots by veterans who have been approved for a loan under the National Housing Act and who act as their own contractors.

In June 1961 the minimum land requirement for part-time farming establishments was reduced from two acres to one-half an acre. This has had several immediate results. For instance, many veterans have found that they were able to acquire suitable land of the smaller minimum size required and this has led to a heavy increase in the volume of applications for qualification. Another effect, which may be more noticeable in 1962, is that veterans previously established on two or three acres are now able to dispose of some of their land if they so desire. In 1961, 2,172 loans were approved for small holders and commercial fishermen compared with 1,881 in the previous year.

The increased amount of funds available to full-time farmers established under the Act has increased the demand for advisory and supervisory field services. As of Dec. 31, 1961, 1,955 farm accounts were in the category of supervised loans—those where the total debt was in excess of 65 p.c. of the security value of the real property on which credit was

* Legislation amended March 1962 to make final contracting date Oct. 31, 1968.

advanced. In such instances, the veteran is required to file a farm plan acceptable to the Director, keep farm accounts and submit annually a financial statement of his farm operations together with a statement of his net worth, and prepare a budget for the management and operation of his farm. These requirements have necessitated intensive training programs for the veterans and the field staff. Veterans are visited during the growing season, the number of visits varying with individual circumstances. An attempt is made from an analysis of the farm accounts to determine how the farmer can best improve his business—which enterprises are not profitable and which should be expanded.

From the inception of the Act to the end of 1961, 89,015 veterans had received financial assistance and almost \$519,000,000 had been expended for this purpose. Active accounts numbered 52,789 at the end of the period, including accounts of 458 Indian veterans settled on Indian reserves, which are administered by the Indian Affairs Branch of the Department of Citizenship and Immigration. During 1961, exclusive of loans advanced to full-time farming veterans already settled, financial assistance was approved on behalf of 2,880 veterans, including 320 being settled as full-time farmers, 2,156 as small holders and 331 for home building.

Appraisals numbering 10,583 were completed in 1961. The joint field staff comprising Farm Credit Advisers of the Veterans' Land Administration and the Farm Credit Corporation made 7,730 farm appraisals, of which 1,476 were for loans under the Veterans' Land Act, and the Veterans' Land Act Settlement Officers and dual-role Construction Supervisors made 2,853 appraisals of non-farm properties.

From inception of operations to the end of 1961, 30,443 houses were started and 29,283 completed. Although there was a reduction in the number of houses started during 1961, completions numbered 1,639 compared with 1,607 in 1960. In addition, 909 veterans received approval to effect additions or improvements to their homes and other buildings.

Veterans continued to maintain a very satisfactory repayment record. The total amount collected and applied to the Consolidated Revenue Fund from current active accounts represented 103.7 p.c. of the total due and owing on 51,000 accounts. Of the \$473,000,000 expended on behalf of 78,224 veterans established with repayable contracts, 55.8 p.c. had been repaid by Dec. 31, 1961. This percentage included \$63,649,257 in conditional grants earned by 35,356 veterans who fulfilled the terms of settlement for the first ten years of their contracts. A major factor contributing to the favourable repayment record is that more than 23,000 veterans have adopted one of the pre-arranged payment plans made available to them. In addition, 837 Share-of-Crop Agreements were in effect in the spring wheat areas of the Prairie Provinces. There have been very few cases where it has been necessary to rescind a contract. The seven occurring in 1961 brought the total since inception of operations to only 215, representing less than 0.3 p.c. of the repayable contract holders.

6.—Summary of Settlement and Expenditures under the Veterans' Land Act, as at Dec. 31, 1961

NOTE.—This table does not include details relative to sales of reverted or surplus property to civilian purchasers.

Item	Full-Time Farming	Small Holdings	Commercial Fishing	Provincial Lands	Federal Lands	Indian Reserves	City-Size Lots	Total
Approved for financial assistance.....No.	29,457	47,575	1,192	4,892	507	1,634	3,758	89,015
Amount of public funds expended.....\$	189,133,964	277,915,735	5,234,770	10,715,239	1,072,672	3,644,853	31,225,579	518,942,812
Approximate average expenditure per approval.....\$	6,421	5,842	4,392	2,190	2,116	2,231	8,309	5,830
Total conditional grants earned.....No.	18,724	15,996	636	3,548	174	1,171	—	40,249
Average amount of grants earned.....\$	2,066	1,490	1,785	2,296	2,303	2,275	—	1,860
Grants earned, title released.....No.	7,555	7,313	254	3,548	174	1,171	—	20,015

7.—Summary of House Construction under the Veterans' Land Act, as at Dec. 31, 1961

Item	Full-Time Farming	Small Holdings	Commercial Fishing	Provincial Lands	Federal Lands	City-Size Lots	Total
	No.	No.	No.	No.	No.	No.	No.
Houses completed (from 1942).....	1,975	22,091	296	1,414	124	3,383	29,283
Houses under construction.....	78	730	3	6	2	341	1,160
Contracts let (work not yet started)...	125	481	8	100	1	2	717
Net Approvals for New Housing..	2,178	23,302	307	1,520	127	3,726	31,160

Section 4.—Veterans' Bureau

The Veterans' Bureau, which has completed its thirtieth year of operation, is a branch of the Department of Veterans Affairs administered from Head Office in Ottawa by an officer called the Chief Pensions Advocate. He is assisted by Pensions Advocates who are located in all districts in Canada in which offices of the Department are situated, and at the district office in London, England.

The duties of Pensions Advocates, most of whom are lawyers, are to assist former members of the Armed Forces and their dependants, and former members of the various auxiliary organizations such as merchant seamen, firefighters and others, in preparing and presenting pension claims to the Canadian Pension Commission. The Pensions Advocates also appear as counsel for applicants before the Appeal Boards of the Commission and, in addition, they advise pensioners and applicants upon any provision of the Pension Act or phase of pension law or administration that may have a bearing on the applicant's pension claim. No charge is made for the services of the Veterans' Bureau.

During the year ended Dec. 31, 1961, the Veterans' Bureau submitted a total of 6,852 claims to the Canadian Pension Commission for adjudication. This number included 1,400 claims presented to Appeal Boards of the Canadian Pension Commission, of which 603 were wholly or partially granted. These Appeal Board claims were supported by oral evidence provided by 1,573 witnesses, including approximately 704 medical and 869 lay witnesses.

During the same year, the Veterans' Bureau submitted 1,224 straight entitlement claims to the Canadian Pension Commission, based on service rendered in World War I and peacetime, of which 177 were wholly or partially granted. However, with respect to claims based on service in World War II and Korea, out of a total of 3,226 presented, 1,098 were wholly or partially granted. In addition, the Veterans' Bureau submitted 902 miscellaneous claims to the Canadian Pension Commission (these included applications for leave to re-open, following an Appeal Board hearing, claims for higher degree of aggravation, increased assessment, retroactive awards, compassionate pension awards, etc.) of which 552 were wholly or partially granted.

Section 5.—Veterans Pensions

Canadian Pension Commission.—The Canadian Pension Commission is a statutory body charged with the administration of the Pension Act and the Civilian War Pensions and Allowances Act. The members of the Commission are appointed by the Governor in Council who may also impose upon the Commission duties in respect of any grants in the nature of pensions, etc., made under any statute other than the Pension Act. It reports to Parliament through the Minister of Veterans Affairs.

It is the responsibility of the Commission to adjudicate on claims for injury or disease, resulting in disability or death, incurred during service with the Canadian Navy, Army or Air Force during war or peacetime. The Commission may also supplement, up to Canadian rates, awards of pension to or in respect of Canadians for disability or death suffered as a result of service in the British or Allied Forces during World War I or World War II, or may pay pension at Canadian rates in such cases where the claim has been rejected by the

government of the country concerned. The Commission's representatives, called Pension Medical Examiners, are located in most of the district offices of the Department of Veterans Affairs across the country.

The Pension Act.—Previous issues of the Year Book contain information on the development of Canadian pension legislation, together with yearly statistics of numbers and liabilities. The Act was amended by SC 1961, c. 10, which became effective Mar. 1, 1961. The principal changes are as follows:—

1. Basic rates of pension for disability and death are increased.
2. Pension on behalf of dependent children continues to the end of the month in which the child reaches the statutory age limit—16 for boys and 17 for girls—instead of being discontinued the day following the child's birthday.
3. When a widow dies, pension at a rate not exceeding that payable for a widow may be paid to any person who is competent to assume and has assumed the care of the child or children for as long as there is a child under 21 years of age in respect of whom pension is payable. Previously this housekeeper's allowance could be paid only to a daughter.
4. Where a veteran who is residing with a woman with whom he is prohibited from celebrating a marriage by reason of a previous marriage either of such woman or himself with another person shows to the satisfaction of the Commission that he has, for seven years or more, continuously maintained and publicly represented such woman as his wife, the Commission may, in its discretion, deem such woman to be his wife for the purposes of the Pension Act. Upon the death of the veteran such a woman may also be deemed to be his widow for the purposes of the Act.
5. Maximum grants for last illness and burial expenses are increased to amounts equal to those available under the Department of Veterans Affairs Veterans Burial Regulations.
6. The maximum pension payable to a parent in cases in which pension has been awarded to a widow or divorced wife or a woman eligible by virtue of Sect. 36(4) of the Act has been increased from \$480 to \$576 per annum and if pension on behalf of the widow or other primary dependant referred to is discontinued, a parent may be awarded pension in any amount not exceeding schedule rates.
7. The benefits of the Act are extended to Canadians with the required domiciliary status who served during World War I or World War II with other Commonwealth or Allied Forces and whose claims for pension have been rejected by the governments concerned. These veterans may apply direct to the Commission and have their claims considered under the terms of the Pension Act. If such claims are allowed, pensions are paid at Canadian rates and these pensions, as well as pensions supplementing those granted by other countries, may be paid anywhere in the world as long as the recipient has resided in Canada for at least one year since the date of the disability or death in respect of which the benefits are conferred.

The total estimated increase in annual liability as a result of the increase in basic rates was \$31,121,565. At Dec. 31, 1961, the annual liability was \$175,178,618 as compared with \$146,436,306 at the end of 1960.

The new rates of pension result in the basic scale being the same for all ranks up to and including Colonel and equivalent ranks. Following is a comparison of the new basic rates with those formerly in effect:—

<i>Item</i>	<i>Annual Rate Formerly in Effect</i>	<i>Annual Rate Effective Mar. 1, 1961</i>
	\$	\$
Man—100 p.c. disability*	1,800	2,160
Additional pension, if married—		
Wife.....	600	720
One child.....	240	324
Two children.....	420	564
Each additional child.....	144	192
Widow.....	1,380	1,656
One child.....	480	648
Two children.....	840	1,128
Each additional child.....	288	384
Dependent parent—maximum award.....	1,080	1,296
Two dependent parents—maximum award.....	1,380	1,596

* For assessments lower than 100 p.c., the awards are proportionately less.

The rates of pension for disability and pensioned widows are statutory and adjustments were made by Treasury Branch without reference to the Commission. The amounts payable to parents, however, are not fixed and a review of some 7,400 cases was necessitated.

Attendance allowance, which is payable to a pensioner who is totally disabled and in need of attendance, and which varies from a minimum of \$480 to a maximum of \$1,800 depending on the degree of attendance required, is paid in addition to pension. While a pensioner must be totally disabled, helpless and in need of attendance to receive this allowance, the cause may be non-pensionable. The disability for which pension is in payment may be a minor one and not related to the need of attendance. The rates for the various classifications under which awards are made are set by the Commission. These rates are reviewed from time to time and such changes made as may be considered advisable. In line with this policy, early in the year the rate of attendance allowance for total blindness was increased from \$1,440 to \$1,680 per annum, with effect from Apr. 1, 1961, and adjustments made where applicable.

The Civilian War Pensions and Allowances Act provides for the payment of pensions to or on behalf of persons who served in certain civilian groups that were closely associated with the World War II war effort and who suffered injury or death as a result of such service; these include merchant seamen, saltwater fishermen, auxiliary services personnel, ferry pilots of the RAF Transport Command, firefighters who served in Britain, etc.

8.—Pensions in Force under the Pension Act, as at Dec. 31, 1961

Service	Disability		Dependant		Disability and Dependant	
	Pensions in Force	Liability	Pensions in Force	Liability	Pensions in Force	Liability
	No.	\$	No.	\$	No.	\$
World War I.....	43,771	41,141,070	14,568	23,148,424	58,339	64,289,494
World War II.....	105,848	84,573,334	17,056	22,910,454	122,904	107,483,788
Peacetime.....	1,495	958,201	533	1,032,359	2,028	1,990,560
Special Force.....	1,688	1,147,368	173	267,408	1,861	1,414,776
Totals.....	152,802	127,819,973	32,330	47,358,645	185,132	175,178,618

Section 6.—War Veterans Allowances

War Veterans Allowance Board.—The War Veterans Allowance Board is a statutory body responsible to the Minister of Veterans Affairs for the administration of the War Veterans Allowance Act. The Board consists of eight members including a chairman and a deputy chairman. A detailed outline of the Board's functions and responsibilities will be found on p. 302 of the 1961 Year Book.

War Veterans Allowance Act.—The War Veterans Allowance Act provides for allowances to be paid to veterans with service eligibility who are no longer capable of maintaining themselves by reason of age or disability. A male veteran under the age of 60 and

a female veteran under the age of 55 must be declared to be permanently unemployable or incapable of maintenance because of physical or mental incapacity or insufficiency combined with economic handicaps. Service eligibility is any one of the following: service in a theatre of war; receipt of a war disability pension or acceptance of a commuted pension or award of a posthumous pension; service in World War I and World War II provided that both discharges were honourable; service in Britain during World War I for at least 365 days prior to Nov. 12, 1918, including sailing time between Canada and Britain prior to that date. The term "veteran" includes a member of the North West Field Force; a Canadian, British or Allied veteran of World War I or World War II; a Canadian or British veteran of the South African war provided he had embarked for South Africa prior to June 1, 1902; and a Canadian veteran of the Korean operation. A British or Allied veteran who possesses the above qualifications must have been domiciled in Canada at the time of his enlistment or have resided in Canada for ten years.

The War Veterans Allowance Act was amended on the eleventh occasion, effective June 1, 1961. The major change provided for an increase of 20 p.c. in rates of allowances payable and in the income ceilings. The present rates are as follows:—

<i>Class of Recipient</i>	<i>Monthly Rate</i>	<i>Annual Income Ceiling</i>
	\$	\$
Single.....	84	1,296
Married.....	144	2,088
One orphan.....	54	900
Two orphans.....	94	1,440
Three or more orphans.....	126	1,800

The annual income ceiling for a blind veteran was increased by an additional \$120 per annum. The rate of orphans allowance was increased by more than 20 p.c. to coincide with the rate for orphans in receipt of a pension under the Pension Act. Another amendment indicates that for the purpose of determining the income of a recipient from interest in real property, the value of any premises in which a veteran resides shall be considered only to the extent that it exceeds \$9,000; the amount was formerly \$8,000. Personal property limits were increased to \$1,250 for a recipient of single status and \$2,500 for a recipient of married status.

Widows and orphans also qualify for an allowance on the basis of entitlement of the veteran. Under certain circumstances, the widow who was prevented from legalizing her irregular union may be deemed to be the widow of a veteran in the event that she had resided with him and been maintained and publicly represented as his wife for seven years immediately prior to his death.

Since Aug. 1, 1960, payment of allowances may be made to recipients who take up residence outside of Canada, provided they were residents in Canada for 12 months immediately prior to their departure. Widows and orphans of veteran recipients who die outside Canada are entitled to allowances without returning to Canada in order to qualify. On Dec. 31, 1961, there were 387 veteran recipients residing in other countries and 300 widow recipients residing in other countries.

Full treatment coverage is provided to all veteran recipients who are residing in Canada but not to those residing outside Canada. Treatment is limited to the veteran and not extended to his dependants.

The number of veterans and others in receipt of allowances at the end of the years 1956-61, together with the amounts of allowances paid, were as follows:—

<i>As at Dec. 31—</i>	<i>Veterans in Receipt of Allowances</i>	<i>Others in Receipt of Allowances</i>	<i>Total in Receipt of Allowances</i>	<i>Expenditure</i>
	No.	No.	No.	\$
1956.....	39,543	15,193	54,736	40,853,773
1957.....	41,820	16,601	58,421	45,187,400
1958.....	45,466	18,659	64,125	53,970,728
1959.....	47,393	20,141	67,534	56,927,614
1960.....	48,521	21,421	69,942	58,207,130
1961.....	51,537	23,373	74,910	69,825,747

During 1961, 69,654 cases were reviewed by the 19 District Authorities across Canada so that changes in the financial, physical or domestic circumstances of the recipients concerned might be reflected in the allowance being paid; 14,806 cases were reviewed by the War Veterans Allowance Board at Ottawa to ensure uniformity in the application of the provisions of the legislation in all districts; also, 770 appeals from adjudications were dealt with by the Board.

Section 7.—The Commonwealth War Graves Commission

The Imperial War Graves Commission was incorporated on May 21, 1917, under the Royal Charter granted by His Majesty in Council on a recommendation made by the Imperial War Conference in April of that year. The name was changed by a supplemental Royal Charter on Apr. 1, 1960, to the Commonwealth War Graves Commission. The Governments of Britain, Canada, Australia, New Zealand, South Africa, India and Pakistan are members of the Commission. South Africa, after becoming a republic, requested and obtained permission from the other Commonwealth Governments to remain a member of the Commission and is represented by an Ambassador in London. The Minister of Veterans Affairs is the Agent of the Commission in Canada and the office of the Secretary-General of the Canadian Agency is in the Veterans Affairs Building, Ottawa.

The Commission is entrusted with the marking and maintenance in perpetuity of the graves of those of the British Empire and Commonwealth Armed Forces who lost their lives between Aug. 4, 1914 and Aug. 31, 1921, and between Sept. 3, 1939 and Dec. 31, 1947, and with the erection of memorials to commemorate those with no known grave. In many of the cemeteries and plots a central feature is the Cross of Sacrifice or the Great Stone of Remembrance.

The area of responsibility of the Canadian Agency is the Continent of North America but it has also certain duties of inspection in Argentina, the Bahamas, Barbados, Bermuda, Brazil, British Guiana, British Honduras, Chile, Costa Rica, Cuba, Falkland Islands, French West Indies, Guatemala, Hawaiian Islands, Jamaica, Leeward Islands, Netherlands Antilles, Panama Canal Zone, Peru, Puerto Rico, Trinidad, Uruguay and Windward Islands.

In North America the Agency has commemorated 18,944 Commonwealth war dead in almost 3,000 cemeteries. Approximately 4,100 servicemen of both Wars, missing in operations while based in North America, are commemorated on memorials erected at Victoria, B.C., Halifax, N.S., and Ottawa, Ont. In Oakwood Cemetery, Montgomery, Alabama, the Agency has erected the only Cross of Sacrifice in the United States.

CHAPTER VII.—EDUCATION AND RESEARCH

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

PART I.—FORMAL EDUCATION*

Section 1.—Education in the Provinces and Territories

Canada is committed to the principle of publicly supported, publicly controlled systems of education, with compulsory schooling and free elementary and secondary education operating under provincial school laws. This principle is based on the recognition that a high general education level on a broad front is necessary if Canada is to develop its resources to the full, safeguard its democratic institutions, and play a worthy role as a member of the community of nations.

Organization of Education in the Provinces.—Under the terms of Confederation each Canadian province is responsible for the establishment and administration of its own educational system. This is a right and a responsibility as jealously guarded today as it was at that time. It has resulted in the formation of ten distinct provincial systems with differing policies, organizations and practices. Even so, in some respects a great deal of similarity has developed among the systems as a result of interchange of personnel and ideas, ease of transportation and communication, interprovincial and national education bodies, proximity, co-operation and emulation. Each province has established a department of education (in Quebec it functions under the name "Department of Youth"), and each province except Quebec has a Cabinet Minister as Minister of Education. In Quebec public education is administered by a Superintendent of Education—a non-political appointee—who maintains liaison with the Cabinet through the Minister of the Department of Youth; he is head of the Council of Education, composed of Roman Catholic and Protestant committees which sit separately, each being responsible for the organization and administration of its own public schools and teacher-training institutions, for conducting examinations for school inspectors, and for making recommendations to the Cabinet concerning school grants and certain specified appointments.

* Prepared in the Education Division, Dominion Bureau of Statistics.

Local School Organization.—Within the framework of each provincial jurisdiction and regulation, public education is administered by local education authorities operating under a school Act. These school boards or boards of education are responsible for establishing and maintaining schools, employing qualified teachers, providing pupil transportation where needed, and budgeting for the money required to operate the schools, which will be raised through local taxation. Local boards may be elected, appointed, or partly elected and partly appointed. They differ in number of members from three in the case of most small rural units to five, seven, or even twelve or more for urban units. Where larger units in rural areas have been established, there are central boards for the units representing the component districts, although there may be local boards retaining some custodial and advisory duties.

The larger unit, replacing rural districts which were usually about four miles in extent, has been introduced by legislation in several provinces and made optional in others in an effort to provide better school facilities and greater equalization of costs and to mitigate the problems caused by a chronic shortage of teachers. Larger units have been established by legislation in Alberta and British Columbia and by Acts with provision for local option in Saskatchewan and the Maritime Provinces. Southern Ontario has been gradually organizing its rural areas into township and county units; Manitoba has recently introduced legislation leading to the formation of larger units of administration for secondary schools; and Protestant Quebec has been essentially organized into larger units. In Roman Catholic Quebec, one board of commissioners administers all Roman Catholic schools in a school municipality, whether rural or urban, while secondary education is being consolidated more and more into larger central secondary schools. In that province there have always been more private residential schools established by religious groups than elsewhere.

Administration of Elementary and Secondary Education.—Each department of education, among its duties, undertakes to provide for the selection, training and certification of teacher candidates; to establish courses of study and prescribe school texts; to provide inspection services and liaison between the local boards and the department; to assist in financing the school through grants and services; and to make rules and regulations for the guidance of trustees and teachers. In return, regular reports are required from the teachers and the districts.

The first government grants were based on such factors as number of teachers, enrolment, days in session and attendance. Later, special grants were introduced in most provinces to meet a variety of expenses such as the erection of the first school and other construction, the organization of special classes, transportation for pupils, and school lunches. More recently, most provinces have made some provision for equalization grants and several have introduced a basic grant for operation, supplemented by a limited number of special grants.

The public school system normally provides 12 or 13 years or grades, depending on the province. Common patterns for elementary and secondary levels are 8-4 or 8-5, 6-3-3 or 6-3-4, or 7-5. The trend is toward six elementary years with six or seven years of secondary schooling, following the practice of doing away with the one-room rural units through consolidation and the consolidation of small high schools. The generally accepted age of entrance to regular classes is now six years, although there has been an increased demand for kindergarten and nursery schools that has not been satisfied in many areas because of pressure for accommodation at the higher levels; the establishment of many private nursery schools and kindergartens has eased the situation to some extent. The amount of supervision for these pre-school establishments varies widely from province to province but is usually minimal.

In several provinces Roman Catholic or Protestant minorities are permitted by law or by 'gentleman's agreement' to organize separate schools under public auspices; and in all provinces religious groups, private organizations and individuals have established private schools at the elementary and secondary levels. Except in Quebec, private schools are small in number and account for only about 5 p.c. of the total elementary and secondary enrolment. Many of these schools are residential and tend to place greater emphasis on

character building and cultural subjects than do the public day schools. Nevertheless, in general they follow the standard curriculum fairly closely and prepare students for university or for entrance into the business world. Private schools in Quebec, most of which are operated by various orders of the Roman Catholic church, are more numerous than in the other provinces. About 25 p.c. of the secondary grade enrolment in this province is in independent schools (those not under school boards), some of them operated by the province and others subsidized by the province.

Although education is, in general, the prerogative of the provincial governments, the Federal Government has the responsibility for the education of Indians and Eskimos, other children in the territories outside the provinces, inmates of penitentiaries, and members of the Armed Forces and their families living on military stations at home or overseas. In carrying out this obligation, the Federal Government utilizes provincial educational facilities whenever possible.

Education of Indian children in Canada is a function of the Indian Affairs Branch of the Department of Citizenship and Immigration. Residential schools are provided for orphans, children from broken homes and children of isolated families. Day schools are available for children living in communities and, where conditions are favourable, Indian children attend non-Indian schools. In addition, vocational and professional training is provided for Indian youths. (See also pp. 150-151.)

The provision of educational facilities for the nomadic Eskimo population, a responsibility of the Northern Administration Branch of the Department of Northern Affairs and National Resources, is a more difficult problem. There are now 56 schools established throughout the vast Northwest Territories at points scattered from the Mackenzie delta to northern Quebec. Some of these are operated by religious missions assisted by government grants. All northerners, regardless of race or religion, attend the same schools. These range from the larger school at Yellowknife, where a variety of vocational courses are given and where students may qualify for university entrance, to single classroom units in remote Eskimo settlements. Vocational training is considered so important for the Eskimo young people in certain areas that specially chosen groups are sent south to secure training in trades in which they may later find employment in their own communities.

Parent-teacher and home and school organizations are numerous and active across Canada, working toward better schooling and giving community leadership in many areas connected with child instruction and welfare.

Special Education.—Each year, increased provision is made for children who need special programs, particularly for those in the cities where numbers warrant such attention. There are in Canada six schools for the blind and eleven schools for the deaf and in a number of centres classes are held for hard-of-hearing pupils and for those with poor vision. Other physically handicapped children for whom instruction is provided include cerebral-palsied, orthopaedic, and hospitalized and home-bound tubercular and delicate children, as well as the mentally retarded and emotionally disturbed. In addition to the special assistance given to the handicapped, a limited number of classes are conducted for mentally gifted children. Special educational services are also provided for the Indian and Eskimo nomads of Northern Canada and for isolated children such as those serviced by railway-car classrooms in northern Ontario and by bus classrooms in British Columbia.

In addition to the provision of special schools or special classrooms for atypical children, there is in some larger urban schools a considerable degree of 'streaming'. Bright pupils are grouped into separate classes where they can be provided with an enriched program of studies; slow learners are also grouped in order that they may be given special attention suitable to their capabilities.

Public School Construction.—The development of larger school units and the consequent decrease in the number of one-room rural schools has more than balanced the increase in the number of new schools erected to accommodate increased enrolment. Thus the total number of elementary and secondary schools has been decreasing slightly for some years although pupil accommodation has greatly increased year by year. Planners

and designers of new school buildings have paid greater attention to functional architecture, to the use of modern light-weight materials, and to equipment possibilities. Gone are basements, towers, expensive trim and waste space but more expensive heating, plumbing and ventilation systems have been incorporated. Flexibility has been introduced through non-bearing interior walls, easily movable desks and other equipment. Well-organized, smartly tailored rooms are common, featuring acoustic and glazed tile, terrazzo flooring, metal partitions, suspended ceilings and fluorescent fixtures. Warm colours are used for north rooms, cool colours for sunny rooms. Special rooms are designed for such courses as home economics, mechanics, music and chemistry.

Teachers and Teachers' Salaries.—Candidates for teaching certificates at the elementary level are generally required to have high school graduation or better, plus one year of professional training. Teacher training is given in provincial teacher-training colleges in courses lasting one school year or occasionally two, or in the universities where the training is usually combined with arts and science classes in a regular three-year or four-year university course. Secondary school teachers must have university graduation plus one year of professional training, or a special four-year university course in education.

In 1961-62 there were 125 normal schools and teachers' colleges preparing teachers, and 28 university faculties of education; together, these institutions expected to graduate more than 18,000 teachers at the end of the school year. In this same school year there were an estimated 175,000 full-time teachers in the elementary and secondary schools of the nation, of whom the majority were between 24 and 45 years of age. Exclusive of Quebec province, about 60 p.c. of these teachers were women, of whom more than half were married.

Teachers are generally employed according to a local salary schedule, belong to a provincial superannuation scheme and are members of a professional organization.

Higher Education.—The jurisdiction of provincial departments of education embraces only the elementary and secondary levels, which provide for the education of youths up to age 17 or 18. At these levels public education is free in the sense that the costs are met out of general taxation. The extension of general education beyond the secondary to the college or university level is referred to as "higher" education, at which point the student is offered a wide diversity of courses in the arts, sciences, humanities and professions. The organization as well as the financing of higher education is noticeably different from that of elementary and secondary education.

Canadian universities are English-language, French-language or bilingual. The French-language institutions are mostly church-related and have been patterned after those of some European countries. Until recently, they stressed the classics as preparation for the professions but they are changing and an increasing emphasis is being placed on pure and applied science. The older English-language universities stemmed from a variety of needs and desires on the part of the provincial governments, churches, and settlers from England, Scotland and elsewhere who also wished to establish institutions similar to those with which they were familiar.

In Eastern Canada, institutions of higher learning have tended to develop at different periods in response to these needs. The result is that a variety of small and middle-size degree-granting colleges and universities exist today. This is especially true in the Maritime Provinces. In Western Canada, on the other hand, the policy has been to establish one large provincial university with sole degree-granting powers within the province. Whether this policy of one degree-granting institution for the province will suffice in the face of the increasing demand for higher education is a matter of speculation. There is already some pressure in British Columbia for the establishment of a second university with degree-conferring powers. In Alberta and Saskatchewan branch campuses of the provincial universities are in operation, and legislation for the establishment of junior colleges has been passed in British Columbia and Alberta.

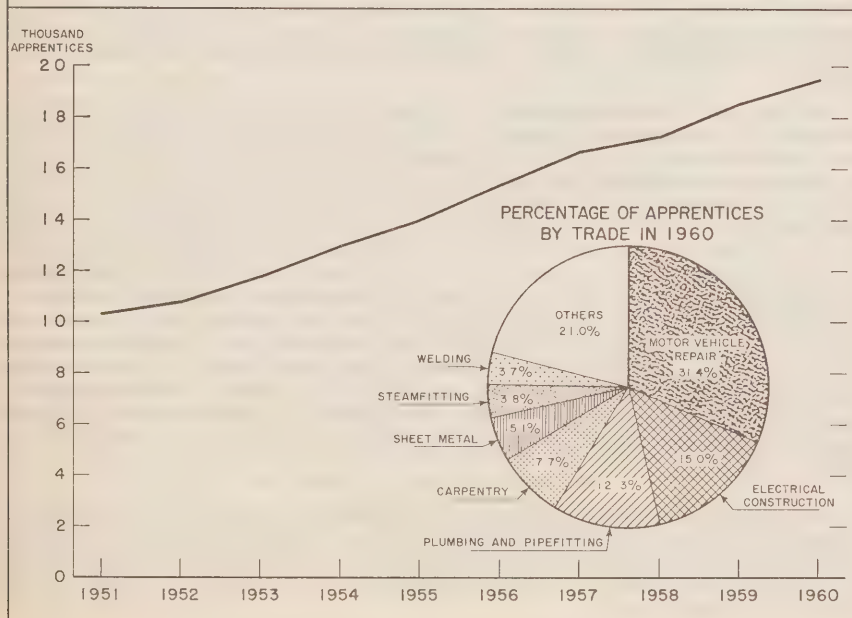
The increasing enrolment, resulting partly from an increase in the university-age population and partly from the higher proportion of young persons seeking university training, has resulted in an unprecedented expansion of facilities as well as in an extension of colleges into universities and in the establishment of new institutions. Most of the universities have conducted financial campaigns for expansion at some time during the past ten years and indications are that many more such campaigns must be undertaken in the near future. Despite expansion and modernization, there are still some old and crowded buildings in use which contrast sharply with the new well-planned, roomy, permanent structures on spacious campuses. All Canadian universities are expanding, whether they are located in the cramped heart of a city, have begun again in suburban areas or were fortunate enough to have ample room on their first campus sites.

The Federal Government operates three military colleges—the Royal Military College of Canada, established at Kingston, Ont., in 1876 and authorized to grant degrees in 1959; Royal Roads College near Victoria, B.C.; and Collège Militaire Royal de Saint-Jean, the French-language military college at St. Jean, Que. (See also Chapter XXV on Defence of Canada.)

Vocational Education.—The pattern of vocational education and training in Canada varies from province to province and there are also variations within provinces. Courses listed under the same headings may not be offered at exactly the same level or have the same purpose and courses may have the same names in two provinces but may vary in content, duration and even in purpose.

There are basically three types of institutions offering vocational education—trade schools, high (or secondary) schools, and technical institutes. The courses at the trade level do not usually require high school graduation; the grade level demanded, which

APPRENTICES UNDER CONTRACT IN SKILLED TRADES, 1951-60
(EXCLUDING THE PROVINCE OF QUEBEC)



varies according to province or trade, ranges from Grade 8 to Grade 11 or even 12. On the other hand, enrolment in technical institutes presupposes high school graduation or at least high school standing in such relevant subjects as mathematics and the sciences.

Vocational education is also carried out under a system of apprenticeship training. Its main characteristic is the indenture or contract between the apprentice and the employer, who is registered with the provincial department of labour concerned. The training itself is done mainly on the job with concurrent attendance in classes either during the evening or on a full-time basis during the day for periods ranging from three to six weeks a year. Training in schools at the trade level is basically a provincial responsibility. Thus, most of the trade schools across Canada are provincially operated but some municipal school boards operate institutions offering trade training both for students of compulsory school age and for those who have left school.

The Federal Government contributes considerably to the maintenance and development of vocational training facilities, recognizing vocational training as an important part of the economic development of the country. The contribution of the Federal Government affects practically every phase of publicly sponsored vocational training in Canada, although the degree of this contribution varies. Even private vocational schools receive federal aid indirectly when fees for some of their students are paid in part by the Federal Government.

The financial involvement of the Federal Government goes back to the 1920's and the 1930's when the cost of vocational youth training was first shared by the provinces and the Federal Government. During World War II and immediately after, the training of specialists and veterans was also considered a federal responsibility and therefore the Federal Government contributed to its cost. The Vocational Training Co-ordination Act of 1942, together with specific agreements signed by most of the provinces, established federal contributions toward vocational training, for both capital and operational expenditure. That Act was replaced in December 1960 by the Technical and Vocational Training Assistance Act (SC 1960-61, c. 6), the objectives of which are to provide assistance for the training of Canada's labour force, to develop skilled manpower from domestic sources to meet future requirements, to reduce the number of unemployed persons by providing them with a skill required to gain and progress in employment, and to develop manpower efficiently.

The new Act contains fundamental changes in the basic policy of federal financial assistance. Of perhaps greatest immediate impact is the provision that the Federal Government will contribute 75 p.c. of the total amount expended by a province on the building and equipping of vocational training facilities up to Mar. 31, 1963. The Federal Government will contribute 50 p.c. of a provincial government's cost of technical, trade or occupational training for all persons who have left the regular school system, without the limit of a quota allotment based on population or any other factor; will contribute 50 p.c. of the cost of training technicians; will pay 50 p.c. of the cost of training vocational teachers, supervisors and administrators; and will share the expenditure for financial assistance to students in the technological training programs. The new legislation also carries forward a number of the provisions of the former Act, such as those authorizing federal payment of 75 p.c. of the cost of the program for training unemployed and 50 p.c. of the cost of the training of physically disabled persons and apprentices in classes. The importance of the 1960 legislation becomes apparent from the fact that the Federal Government plans to spend an estimated \$75,000,000 on its implementation during the year ended Mar. 31, 1962.

Financing Education.—During 1958, \$1,234,245,000 (nearly 5 p.c. of total personal income) was spent on formal education and vocational training in Canada. This amount represented close to 13 p.c. of all government revenue—municipal, provincial and federal; the provinces provided 48 p.c. of such expenditure, the municipalities 43 p.c. and the Federal Government 9 p.c.

TOTAL EXPENDITURE ON EACH PUPIL
IN PUBLIC ELEMENTARY AND SECONDARY SCHOOLS



The Federal Government finances the education of Indians, Eskimos and the children of members of the Armed Services. It also makes grants to universities through the Canadian Universities Foundation; these are allocated to the provinces on a per capita basis and then distributed among the universities of each province according to full-time enrolment. Scholarships and grants in aid of research are awarded to universities and individuals by the National Research Council, the Defence Research Board, the Canada Council, and other Federal Government departments. The Federal Government is also playing an increasingly important role in the financing of vocational education, paying matching grants to the provinces in respect of their programs and 75 p.c. of the expenditures for buildings and equipment.

The provincial governments make grants to all publicly controlled school boards. The bases of these grants, which account for from 30 p.c. of total school board revenue in Quebec to 86 p.c. in Newfoundland, vary from province to province. Some attempt at equalization is made by all provincial governments so that poorer boards receive a higher proportion of their costs from grants than do wealthy boards. In some provinces, such as Alberta and Nova Scotia, this is achieved through a foundation program which ensures that every board can provide the required minimum standard of education while levying the same tax rate. Most of the other provinces pay grants based on equalization formulas, sometimes in addition to flat grants and incentive grants, but in Newfoundland and Prince Edward Island some measure of equalization is achieved by the province paying a high proportion of the teachers' salaries. The provincial departments of education provide a number of services to school boards, operate teacher-training schools, technical and trade schools and special schools for the blind and deaf, and either operate or make grants to provincial universities.

In all provinces except Newfoundland and Prince Edward Island, municipal governments are responsible for raising, by taxes on real property, the money required by the school boards over and above provincial grants. In Prince Edward Island, the school boards levy and collect the school tax as there is no other form of municipal government outside Charlottetown and Summerside. In Newfoundland, local taxation for school purposes was introduced in 1955 when two communities took advantage of permissive legislation to form School Tax Authorities; a third was authorized in 1961 and a fourth is in the process of formation. These Authorities levy a tax on real property and a poll tax. Elsewhere in the province, funds are raised by the board through fees, social activities, donations in kind and assistance from the religious denominations.

Private schools account for only 4 p.c. of expenditure on elementary and secondary education and their chief sources of revenue are student fees, endowments and gifts from religious organizations or other sponsoring bodies. Universities and colleges receive about 38 p.c. of their current revenue from provincial governments, 21 p.c. from the Federal Government, 27 p.c. from student fees and the remaining 14 p.c. from a variety of sources including endowments and gifts.

Adult Education.—Adult education activities in Canada include organized classes and courses in academic, cultural and technical subjects and such activities as public lectures, documentary film showings, exhibits and performances of various kinds. These are carried on by universities and colleges, government departments and agencies, public libraries and private institutions, organizations and establishments.

Provincial departments of education, health, agriculture, cultural affairs and others operate courses directly or give assistance to sponsors, such as municipal boards of education. The Federal Government operates classes and courses for special groups such as Indians, residents of the Northwest Territories, inmates of federal penitentiaries, members of the Armed Forces and veterans. The Federal Government also provides educational and cultural services to the public through the National Museum, the National Gallery, the National Film Board and the Canadian Broadcasting Corporation.

The work of the various agencies in the adult education field is co-ordinated through membership in such national associations as the Canadian Association for Adult Education, l'Institut canadien d'éducation des adultes, the Canadian Education Association, the Canadian Association of Directors of Extension and Summer Schools, la Fédération des collèges classiques and the Canadian Library Association.

Research in Education.—The many types of research now under way in the field of education are expanding in scope and increasing in variety of method, and involve large numbers of personnel. Historic and other studies, surveys, projects in applied research including action research, and a limited amount of basic or pure research are among the current projects. Most of the pure research is conducted in the universities by individuals or teams of professors and graduate students and the same personnel may conduct applied research. Applied research is also conducted by such organizations as the Canadian Education Association, the Canadian Teachers' Federation, the Education Division of the Dominion Bureau of Statistics, l'Association canadienne des Édicateurs de Langue française, the Industrial Foundation on Education, the Canadian Universities Foundation, etc. In addition, certain departments of education and city school boards have research officers who, for the most part, conduct research into curricula examinations, promotion policies, use of visual aids, and related problems.

One of the most promising portents for the future of research in education is the formation of provincial or regional councils to provide co-ordination of effort, to ensure professional advice, to publicize research findings, and to encourage research into imminent problems. Three such councils are well organized and publish journals. Several national bodies interested in research in education collaborated to form, in 1961, the Canadian

Council for Research in Education as an outgrowth of the earlier National Advisory Committee on Educational Research. This Council provides liaison among its constituent bodies and its objectives are to initiate, encourage and develop research in education, to publish a national journal and to act as a clearing-house for the dissemination of information about research activities in this field.

A number of longitudinal studies covering secondary pupils in one or several provinces are assessing the utilization of student resources related to university graduation. Other extensive studies have been related or are related to school administration, visual aids and school finance. In addition, a limited amount of institutional research is being undertaken by several universities.

During the past decade there have been several provincial Royal Commissions appointed to inquire into education as a whole or into some phase of it. Many of these have made use of research techniques as well as submissions received from interested bodies and individuals. One field of education which is currently the subject of considerable investigation and research is that of programmed learning, that is, the use of teaching machines or similar mechanical, electrical or electronic devices to assist the learning process. One session of the 1961 Conference of the Canadian Education Association was devoted to programmed learning and later in the year the Canadian Teachers' Federation held a three-day seminar on the same subject. The Canadian Association for Adult Education held a similar seminar early in 1962.

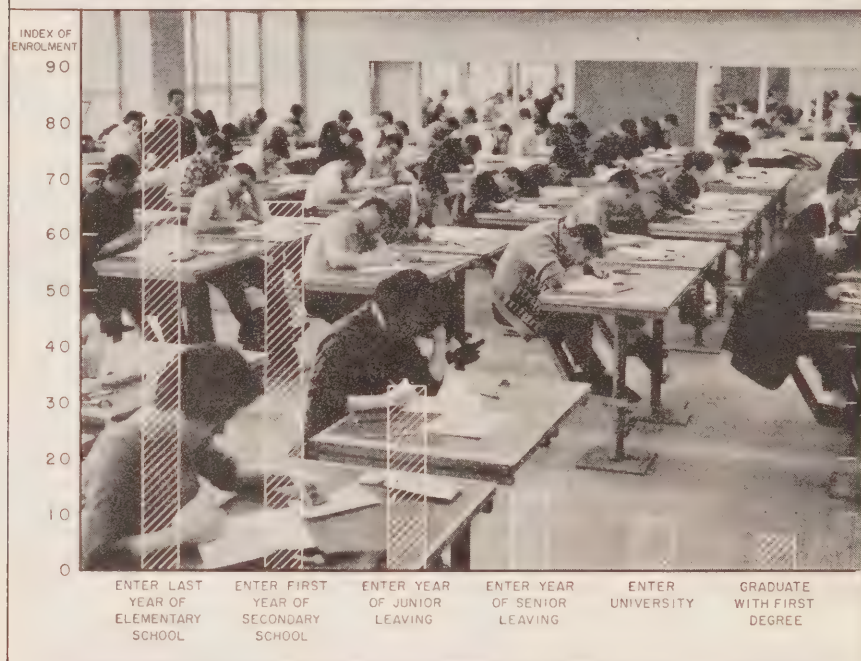
In June 1961, an invitational meeting of persons engaged in or interested in research in education was held at Macdonald College, sponsored jointly by the Canadian Education Association and the Canadian Council for Research in Education. Papers presented formed the basis for a booklet published later under the auspices of the Canadian Conference on Education. The second meeting of the Canadian Conference on Education was held in Montreal in March 1962. This Conference touched on all aspects of the educational scene and embraced both professional and lay organizations.

Section 2.—Statistics of Schools, Universities and Colleges

Elementary and secondary schools may be conveniently classified as publicly controlled, privately controlled, and federal. Municipal and provincial schools, most numerous by far, include elementary and high schools, vocational institutes, trade schools, teacher-training colleges, and schools for the blind and deaf, and provide as well for correspondence courses. Private schools may be academic, business or other vocational schools, or correspondence schools. Federal schools refer to schools for Indians, schools for residents of the Northwest Territories, and overseas schools for children of members of the Armed Forces or for Armed Forces personnel. Higher education is attained at universities and colleges, which may be provincial institutions, church institutions, independent, or federal military colleges. Continuing or adult education takes a variety of forms and reaches all levels from the basic English courses provided for newly arrived immigrants to courses leading to a university degree. Most organized classes for adults function under the auspices of universities, colleges, local school boards, churches and other community organizations.

Table 1 shows the number of schools, teachers and pupils for all types of education institutions, classified by province, for the academic year 1960-61. In all types of schools the number of pupils has been increasing. The increase was first noticed at the elementary level some six years after the birth rate began to rise during the war years. About eight years later the children born during the War were entering high school and four years later they began entering university. The number of teachers is rather closely related to the number of students although the trend is toward larger classes. On the other hand, the number of schools has remained fairly constant, the increase caused by the construction of new and larger schools in urban areas being counterbalanced by the closing of many one-room rural schools.

STUDENT RETENTION FROM SECONDARY SCHOOL TO UNIVERSITY (100 = GRADE 11 ENROLMENT)



1.—Schools, Teachers and Enrolment for All Types of Education Institutions, by Province, School Year 1960-61

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Elementary and Secondary Education—						
Public and Separate—						
Schools.....	1,253	449	1,344	1,372	7,268	7,483
Teachers.....	4,317	969	6,664	5,866	45,694	47,838
Pupils.....	128,917	24,537	179,395	152,289	1,097,948	1,389,163
Overseas (DND)—						
Schools.....	...	...	...	...	...	...
Teachers.....	...	...	...	...	...	...
Pupils.....	...	...	...	...	...	...
Indian—						
Schools.....	—	1	8	9	18	125
Teachers.....	—	2	33	23	103	275
Pupils.....	—	37	773	618	2,353	7,483
Blind—						
Schools.....	—	—	1	—	3	1
Teachers.....	—	—	18	—	40	30
Pupils (home province).....	33	4	56	35	277	167
Deaf—						
Schools.....	—	—	1	—	4	1
Teachers.....	—	—	23	—	97	73
Pupils (home province).....	62	3	106	66	706	528
Private—						
Schools.....	2	5	24	13	730	130
Teachers.....	2	35	279	153	4,868	1,584
Pupils.....	2	692	6,345	2,369	91,256	26,175

For footnotes, see end of table, p. 302.

**1.—Schools, Teachers and Enrolment for All Types of Education Institutions,
by Province, School Year 1960-61—continued**

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Higher Education—						
Institutions.....	3	2	16	10	212	65
Students (full-time university grade).....	1,240	570	5,820	4,070	38,000	32,100
Teacher-Training—						
Teachers' Colleges—						
Institutions.....	—	1	1	1	111	10
Teachers.....	—	2	17	31	1,351	238
Students.....	—	75	503	521	9,225	6,730
Faculties of Education—						
Faculties ¹	1	1	5	3	7	2
Teachers.....	10	1	13	9	54	48
Students ²	680	41	360	201	2,731	806
Vocational Education—						
Pupils—						
Trade courses (pre-employment)	938	122	913	693	7,985	998
Trade courses (apprentices) ⁴	1,006	—	539	1,123	5	2,780
Vocational high school courses..	400	130	1,215	5,022	23,542	59,394
Post-secondary courses.....	—	—	30	61	5,106	3,082
Private business schools.....	—	6	575	611	6,700 ⁷	5,645
Adult Education (part-time enrolment)—						
Universities and provincial governments (1959-60).....	5,267	583	14,124	13,273	141,345	199,832
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
Elementary and Secondary Education—	No.	No.	No.	No.	No.	No.
Public and Separate—						
Schools.....	1,548	2,352	1,205	1,258	72	25,604
Teachers.....	7,460	8,638	11,762	11,868	331	151,407
Pupils.....	189,573	208,679	294,435	321,312	6,877	3,993,125
Overseas (DND)—						
Schools.....	...	...	...	...	...	21
Teachers.....	...	...	...	...	...	379
Pupils.....	...	...	...	...	...	7,274
Indian— ¹						
Schools.....	87	82	51	82	1	464
Teachers.....	211	223	202	223	11	1,306
Pupils.....	5,632	4,961	4,650	5,988	148	32,643
Blind—						
Schools.....	—	—	—	1	—	6
Teachers.....	—	—	—	10	—	98
Pupils (home province).....	19	25	21	75	2	714
Deaf—						
Schools.....	1	1	1	1	—	10
Teachers.....	6	22	21	21	—	263
Pupils (home province).....	99	94	124	186	6	1,980
Private—						
Schools.....	50	33	43	86	—	1,114
Teachers.....	430	273	304	817	—	8,743
Pupils.....	10,379	4,734	6,121	19,733	—	167,804
Higher Education—						
Institutions.....	10	17	11	8	—	354
Students (full-time university grade).....	6,360	5,630	7,140	13,070	—	114,000
Teacher-Training—						
Teachers' Colleges—						
Institutions.....	1	2	—	—	—	127
Teachers.....	22	36	—	—	—	1,697
Students.....	578	975	—	—	—	18,607
Faculties of Education—						
Faculties ³	2	2	2	2	—	27
Teachers.....	12	14	63	83	—	307
Students ⁴	211	903	2,084	2,736	—	10,753

For footnotes, see end of table, p. 302.

1.—Schools, Teachers and Enrolment for All Types of Education Institutions, by Province, School Year 1960-61—concluded

Item	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.
Vocational Education—						
Pupils—						
Trade courses (pre-employment)	1,427	401	705	2,513	325	18,020
Trade courses (apprentices) ⁴	1,041	1,049	3,697	2,623	—	13,858
Vocational high school courses..	2,278	4,543	10,990	7,940	25	115,479
Post-secondary courses.....	—	105	911	146	—	9,441
Private business schools.....	826	883	1,551	2,359	—	19,150 ⁷
Adult Education (part-time enrolment)—						
Universities and provincial governments (1959-60).....	42,788	39,341	50,171	77,541	—	664,046 ⁸

¹ Day, residential and hospital schools administered by the Federal Government. ² One school reported; data included with Nova Scotia. ³ Also included with "Higher Education". ⁴ Includes indentured apprentices taking full-time, part-time and correspondence courses. ⁵ Included under "Trade courses (pre-employment)". ⁶ Included with Nova Scotia. ⁷ Estimate. ⁸ Includes enrolment in courses sponsored by public libraries, business colleges, teacher-training institutions, and Federal Government departments not distributed by province.

An attempt has been made to tabulate total expenditure on education, including formal education at all levels, vocational training of all types and also expenditure on cultural activities related to education such as adult night classes, fine arts and handicraft courses, and libraries, museums and art galleries. Such expenditure for the year 1958 is presented in Table 2, classified by source. Details of income of school boards for publicly controlled elementary and secondary schools for the years 1956-58 are given at p. 307 and financial statistics for universities and colleges at pp. 311-312.

2.—Total Expenditure on Formal Education, Vocational Training and Related Cultural Activities, by Source of Funds, 1958

Type of Education	Local Taxation	Provincial Governments ¹	Federal Government	Fees	Other Sources	Total Expenditure
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Formal Education—						
Elementary and Secondary—						
Public schools.....	495,720	403,413	15,556	5,098	14,117	933,904
Handicapped outside the public schools.....	555	5,985	...	...	254	6,794
Government correspondence schools.....	...	1,392	38	536	...	1,966
Reform schools.....	...	645	...	...	...	645
Indian and Eskimo education.....	...	...	29,570 ²	...	...	29,570
Private schools.....	...	...	...	31,868	8,036	39,904
Totals, Elementary and Secondary.....	496,275	411,435	45,164	37,502	22,407	1,012,783
Teacher-training outside universities.....	...	11,234	15	338	131	11,718
Higher Education—						
Universities and Colleges—						
Current operating expenditures.....	348	41,288	26,277 ³	33,546	12,340	113,797
Plant expenditures from current funds.....	33	27,777	3,625	...	...	31,435
Research in universities.....	...	974	9,253	...	4,384	14,611
Defence Colleges.....	...	...	4,362	...	...	4,362
Scholarships.....	...	1,938	2,203	...	11	4,152
Other.....	...	46	345	...	...	391
Totals, Higher Education.....	381	72,021	46,065	33,546	16,735	168,748
Undistributable expenditure.....	...	...	291	...	...	291
Totals, Formal Education.....	496,656	494,690	91,535	71,386	39,273	1,193,540

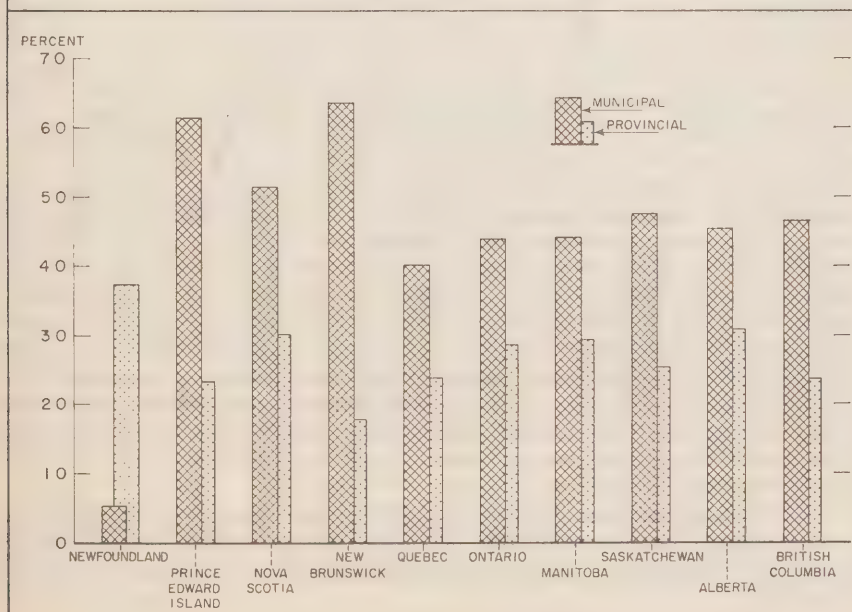
For footnotes, see end of table.

2.—Total Expenditure on Formal Education, Vocational Training and Related Cultural Activities, by Source of Funds, 1958—concluded

Type of Education	Local Taxation	Provincial Government ¹	Federal Government	Fees	Other Sources	Total Expenditure
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Vocational Training—						
Institutes of technology.....	...	11,506	1,795	1,044	179	14,524
Trades training.....	...	10,851	1,014	600	439	12,904
Apprenticeship.....	...	2,377	1,699	47	82	4,205
Training of unemployed.....	...	539	455	...	3	997
Training of handicapped.....	...	429	338	...	...	767
Training of health and welfare personnel.....	...	768	2,051	...	13	2,832
Training of inmates of reform institutions.....	...	372	261	...	...	633
Training of Indians and Eskimos.....	...	...	564	...	...	564
Other public expenditures on vocational training	...	388	291	6	4	689
Private business colleges.....	...	...	...	3,489	...	3,489
Totals, Vocational Training.....	...	27,230	8,468	5,186	720	41,604
Cultural Activities—						
Adult education, including night schools.....	5	1,613	389	1	...	2,003
Fine arts.....	..	1,801	1,047	53	...	2,901
Handicrafts.....	..	212	...	...	...	212
Libraries.....	10,458	2,851	542	45	1,242	15,138
Museums, archives and art galleries.....	...	1,811	6,137	...	5	7,953
National Film Board productions.....	...	...	569	...	...	569
Cultural societies—grants.....	..	105	15	...	...	120
UNESCO—grant.....	...	...	365	...	...	365
Totals, Cultural Activities.....	10,458	8,393	9,064	99	1,247	29,261

¹ Includes the Yukon and Northwest Territories. ² Includes fees paid by Federal Government for Indians and Eskimos in public and private schools for the blind and deaf and for correspondence courses. ³ Includes \$7,295,000 held in trust for Quebec universities. ⁴ Limited to reported expenditure of public funds. ⁵ Included in "Elementary and Secondary—Public schools".

PROPORTIONS OF MUNICIPAL AND PROVINCIAL GOVERNMENT REVENUES EXPENDED ON EDUCATION IN 1960
(ESTIMATED)



Subsection 1.—Elementary and Secondary Schools

Control.—Direct control and operation of public schools is by school boards, which operate under school laws and regulations, and the members of which are elected or appointed usually for terms of two or three years. As stated on p. 292, through amalgamations and consolidations, schools are now operated by boards of larger units, local boards within larger units, independent boards for rural schools, towns or cities, and some by official trustees appointed by the province in lieu of a board. As their designations imply, private schools and federal schools are administered by private organizations and federal authorities, respectively.

Table 3 gives the number of active public school boards in each province in the school year ended in 1961 and indicates the type of board, the number of official trustees and the number of board members elected or appointed to these boards.

3.—Active School Boards and School Trustees, by Province, School Year 1960-61

Province or District	Boards of Larger Units	Local Boards within Larger Units	Independent Local Boards	Total Boards	School Boards Composed of Trustees who are—			School Trustees
					All Elected	Some Appointed Some Elected	All Appointed	
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	313	—	—	313	—	—	313	3,067
Prince Edward Island.....	7	—	473	480	—	9	471	1,514
Nova Scotia.....	35	1,339	42	1,416	1,339	—	77	4,550
New Brunswick.....	12	507	77	596	568	28	—	2,452
Quebec—								
Roman Catholic.....	9	70	1,412	1,491	1,489	—	2	7,487
Protestant.....	10	70	156	236	234	—	2	1,033
Ontario.....	836	11 ¹	3,229	4,076	3,735	52	289	17,150
Manitoba.....	62	38	1,400	1,500	1,500	—	—	4,940
Saskatchewan.....	57	4,765	318	5,140	5,140	—	—	15,943
Alberta ²	59	—	182	241	221	20	—	914
British Columbia ³	82	—	5	87	87	—	—	560
Mackenzie District.....	—	—	3	3	3	—	—	9
Totals.....	1,482	6,800	7,297	15,579	14,316	109	1,154	59,619

¹ Boards of Education, members of Toronto Metropolitan Board.

² Ten school districts are under an official trustee or trustees.

³ In addition, five school districts are under an official trustee or trustees.

Enrolment.—Total enrolment in publicly controlled day schools increased from 1,092,633 in the school year ending in 1901 to 2,264,106 in 1931, but dropped during the 1930's and the early 1940's, when the birth rate was low, to 2,060,718 in 1944. After 1944 it rose slowly for some years and then at an accelerated rate to reach 3,993,125 in the school year ended in 1961. From 1954 to 1961, enrolment advanced by 1,129,000 for the country as a whole although the increase varied from province to province, ranging from 21 p.c. for Prince Edward Island to 49 p.c. for Ontario and 53 p.c. for British Columbia.

Enrolment in private schools accounted for 4 p.c. of the total enrolment at the elementary and secondary levels. The number of private school pupils, reported at 103,000 in 1950-51, increased to almost 168,000 in 1960-61, although about 20,000 of this latter figure resulted from a more inclusive accounting in recent years of all types of private schools in Quebec.

Table 4 shows enrolment of all elementary and secondary pupils in the provinces and territories and in Department of National Defence schools overseas, and classifies them by grade. Private schools and schools for Indian and Eskimo children are included in these figures.

4.—Enrolment in Publicly Controlled and Private Schools, by Grade, School Year 1960-61

Grade	Newfoundland ¹	Prince Edward Island	Nova Scotia ¹	New Brunswick	Quebec	Ontario
	No.	No.	No.	No.	No.	No.
Kindergarten.....	4,943	194	18,023	91	11,922	94,465
Grade 1.....	15,892	2,926	18,169	18,122	142,381	154,039
Grade 2.....	14,226	2,627	17,983	16,612	136,047	141,599
Grade 3.....	14,112	2,519	17,470	16,576	138,154	133,276
Grade 4.....	13,624	2,480	17,352	16,198	135,232	122,030
Grade 5.....	13,153	2,586	17,025	16,255	129,814	120,418
Grade 6.....	12,134	2,488	17,263	15,540	123,126	118,010
Grade 7.....	11,488	2,451	17,212	15,229	109,721	116,643
Grade 8.....	10,058	2,343	14,709	12,910	93,262	109,576
Grade 9.....	9,147	1,733	11,457	10,070	75,847	103,256
Grade 10.....	5,772	1,474	8,801	7,142	50,608	75,022
Grade 11.....	3,772	730	6,577	5,496	34,943	53,429
Grade 12.....	162	656	3,329	4,114	5,693	43,582
Grade 13.....	—	—	118	114	407	20,640
Auxiliary.....	—	31	694	271	4,009	11,853
Special.....	434	28	331	536	391	4,983
Totals.....	128,917	25,266	186,513	155,276	1,191,557	1,422,821

Grade	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T. ²	DND Schools Overseas	Canada
	No.	No.	No.	No.	No.	No.	No.
Kindergarten.....	6,266	3,238	618	4,511	460	919	145,650
Grade 1.....	23,070	24,757	35,595	38,649	1,537	922	476,059
Grade 2.....	21,120	22,604	32,680	35,490	1,055	839	442,882
Grade 3.....	20,712	22,036	31,332	33,977	880	777	431,821
Grade 4.....	19,605	20,428	29,011	31,786	669	645	409,060
Grade 5.....	18,954	20,004	27,873	30,949	560	558	398,149
Grade 6.....	18,317	19,338	26,750	30,585	429	582	384,562
Grade 7.....	18,405	19,430	26,951	31,240	364	616	369,750
Grade 8.....	17,078	17,804	25,548	30,007	355	475	334,125
Grade 9.....	15,014	16,076	22,232	25,432	235	380	290,879
Grade 10.....	11,028	12,463	16,661	20,576	174	227	209,958
Grade 11.....	9,839	10,086	14,751	17,165	119	163	157,070
Grade 12.....	5,053	8,565	15,100	13,609	96	100	100,069
Grade 13.....	2	—	69	1,465	—	65	22,880
Auxiliary.....	1,070	1,105	35	1,434	92	—	20,594
Special.....	41	440	—	158	—	6	7,348
Totals.....	205,584	218,374	305,206	347,033	7,025³	7,274	4,200,846

¹ Enrolment of the only private school reported for Newfoundland included with Nova Scotia. ² Includes Ungava District of Quebec. ³ Total for the Yukon 2,755 pupils.

Teaching Staffs.—Between the school years ended in 1941 and 1961 the number of teachers in the publicly controlled schools of the ten provinces increased 105 p.c. from 77,723 to 159,282. The number of men teachers increased 131 p.c. and the number of women 103 p.c.

In 1961, in the nine provinces outside of Quebec, 78.5 p.c. of the teachers had at least senior matriculation and one year of teacher training, and an additional 11.3 p.c. had one year less schooling. Median experience in the eight provinces outside of Quebec and Ontario has slowly increased from 7.0 years in 1941 to 8.5 years in 1961, despite the large number of new teachers each year. Many of these have been recruited by the cities, where the median experience has declined from a high of 16.7 years in 1946 to 13.4 in 1954 and 9.6 years in 1961.

Between 1941 and 1961 the median salaries of all teachers in the nine provinces other than Quebec increased by 382 p.c. from \$881 to \$4,247, while that for teachers in one-room schools increased by 329 p.c. from \$704 to \$3,021. The annual rate of increase has naturally fluctuated considerably during that period, ranging from 1.8 p.c. in 1941 to 16.8 p.c. in 1948. The increase in 1961 over 1960 was 4.7 p.c. as compared with 7.9 p.c. for 1960 over 1959.

5.—Teachers and Principals in Publicly Controlled Elementary and Secondary Schools, School Year 1960-61

Province	Number	Median Salary	Median Experience	Fully Qualified ¹	University Graduates
TEACHING ELEMENTARY GRADES ²					
		\$	YRS.	p.c.	p.c.
Newfoundland.....M.	1,089	1,636	2.1	19.6	6.6
F.	2,454	2,196	3.4	11.9	2.4
Prince Edward Island.....M.	75	2,332	4.2	21.3	9.3
F.	737	2,222	6.3	9.2	1.1
Nova Scotia.....M.	452	3,218	5.7	78.5	35.2
F.	4,561	2,629	10.1	61.2	9.4
New Brunswick.....M.	449	2,790	3.2	41.9	22.0
F.	3,871	2,431	8.0	25.1	2.8
Quebec.....					
Ontario.....M.	8,346	4,576	6.2	88.9	21.5
F.	28,295	3,690	7.1	82.3	5.2
Manitoba.....M.	967	3,583	5.1	73.1	18.0
F.	3,483	3,548	7.5	78.9	6.4
Saskatchewan.....M.	1,579	4,033	6.4	96.3	9.4
F.	5,045	3,885	8.2	95.5	2.4
Alberta.....M.	1,288	4,912	8.0	88.7	32.8
F.	6,561	4,266	9.1	83.8	6.7
British Columbia.....M.	2,124	5,385	6.6	90.4	33.6
F.	5,243	4,751	7.6	86.2	10.7
TEACHING SECONDARY GRADES ³					
		\$	YRS.	p.c.	p.c.
Newfoundland.....M.	503	4,114	8.9	44.5	48.5
F.	271	3,721	12.3	31.4	32.1
Prince Edward Island.....M.	70	3,749	6.9	28.6	44.2
F.	87	2,752	13.8	21.8	27.6
Nova Scotia.....M.	806	4,583	8.7	78.5	68.7
F.	845	3,963	12.1	61.3	52.7
New Brunswick.....M.	799	4,480	6.6	51.8	48.3
F.	694	3,612	11.0	35.2	32.1
Quebec.....					
Ontario.....M.	7,452	7,298	8.8	76.1	86.1
F.	3,745	6,597	6.8	79.5	91.7
Manitoba.....M.	1,167	5,468	8.9	61.2	65.6
F.	762	5,004	10.8	57.6	62.1
Saskatchewan.....M.	1,361	6,337	12.2	62.4	60.7
F.	653	5,105	12.5	52.2	53.9
Alberta.....M.	2,366	6,691	11.4	63.6	69.4
F.	1,547	5,149	12.0	45.1	48.5
British Columbia.....M.	3,022	7,057	10.0	85.4	71.7
F.	1,479	6,143	10.9	70.3	64.5

¹ Fully qualified at the elementary level are teachers with junior matriculation and two or more years, or senior matriculation and one or more years of professional training. At the secondary level they are teachers with junior matriculation and four or more years, or senior matriculation and three or more years of schooling, of which one year was professional training.

² Comprises teachers and principals instructing or supervising kindergarten and elementary grades only, and those instructing or supervising both elementary and secondary grades in rural schools with five or fewer classes. Teachers and principals in Ontario are classified as elementary according to the provincial *Report of the Minister, 1960*.

³ Comprises teachers and principals instructing or supervising secondary grades only, and those instructing or supervising both elementary and secondary grades in urban centres and in rural schools with six or more classes. Teachers and principals in Ontario are classified as secondary according to the provincial *Report of the Minister, 1960*.

Financial Support.—Table 6 shows the sources of income of boards operating publicly controlled elementary and secondary schools for the years 1956-58. Their income is derived almost entirely from local taxation and provincial grants. Newfoundland is exceptional in that fees and income from other sources account for nearly 13 p.c. of the total income. Prior to 1961, fees were charged by Quebec school boards but school corporations are now required to provide elementary and secondary education free of charge. Under the new legislation, parents who send their children to private schools

are reimbursed for at least part of the fees charged. In other provinces, elementary and secondary education in the public school system is normally provided without direct charges on the parents.

Usually, school boards requisition the local municipalities for the sums needed to balance their budgets, taking into account provincial grants and other income. The municipal governments levy taxes on land and buildings and, in some cases, on improvements, personal property and business income. Several provinces have taken steps to equalize real property assessment.

Provincial grants accounted for 40 p.c. of the total revenue of school boards in 1958, ranging from 30 p.c. in Quebec to 86 p.c. in Newfoundland.

Only four provinces collect figures for debenture indebtedness although it is the usual practice in all provinces for boards to finance construction of new schools, at least in part, by issuing debentures. Provincial governments help boards to meet capital expenditures by grants of a percentage of the cost of new buildings, by grants of a fixed amount per room built, or by paying grants based on debenture debt charges. Some provinces guarantee debentures issued by the boards and others assist in marketing them.

6.—Income of School Boards of Publicly Controlled Elementary and Secondary Schools, by Province, Years Ended Mar. 31, 1956-58

NOTE.—The receipts shown in this table do not include any amounts raised by loans or the sale of bonds or debentures as all revenue of this nature must be repaid ultimately with money raised by local taxation. Figures from 1914 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Province and Year	Income from—			Total Current Revenue Recorded	Debenture Indebtedness ¹
	Provincial Government Grants	Local Taxation	Other Sources		
	\$	\$	\$	\$	\$
Newfoundland.....1956	7,715,895	—	2,400,478	10,116,373	..
1957	8,935,000	30,000	2,382,000	11,347,000	..
1958	11,533,000	163,000	1,682,000	13,378,000	..
Prince Edward Island.....1956	1,077,575	855,740	62,482	1,995,797	..
1957	1,174,000	1,000,000	56,000	2,230,000	..
1958	1,220,000	1,178,000	101,000	2,499,000	..
Nova Scotia.....1956	10,748,523	11,383,492	181,550	22,313,565	..
1957	12,300,000	13,216,000	420,000	25,936,000	..
1958	12,567,000	14,329,000	372,000	27,268,000	..
New Brunswick.....1956	7,074,623	11,755,598	194,658	19,024,879	..
1957	7,712,000	13,453,000	308,000	21,473,000	..
1958	6,829,000	14,797,000	612,000	22,238,000	..
Quebec.....1956	41,048,000	93,878,000	4,680,155	139,606,155	206,399,762
1957	48,659,000	106,655,000	5,366,000	160,680,000	236,492,000
1958	56,042,000	122,191,000	6,176,000	184,409,000	264,789,000
Ontario.....1956	80,292,926	164,295,105	11,913,872	256,501,903	..
1957	98,182,000	188,722,000	9,944,000	296,848,000	..
1958	129,552,000	197,656,000	12,412,000	339,620,000	..
Manitoba.....1956	8,928,352	21,424,949	610,132	30,963,433	21,837,183
1957	10,093,000	23,472,000	566,000	34,131,000	23,529,467
1958	13,190,000	24,400,000	639,000	38,229,000	27,144,910
Saskatchewan.....1956	12,993,200	29,707,169	82,866	42,783,235	19,160,360
1957	18,637,000	32,270,000	864,000	51,771,000	23,855,158
1958	20,579,000	34,613,000	991,000	56,183,000	27,692,949
Alberta.....1956	26,742,290	30,374,780	1,399,565	58,516,635	66,493,578
1957	40,594,000	35,678,000	1,989,000	78,261,000	84,064,487
1958	48,810,000	41,092,000	1,887,000	91,789,000	95,579,719
British Columbia.....1956	35,570,755	29,794,611	1,793,462	67,158,828	..
1957	39,446,000	36,766,000	1,699,000	77,911,000	..
1958	43,217,000	45,128,000	1,935,000	90,280,000	..

¹ Net figures, after deduction of sinking funds.

Subsection 2.—Universities and Colleges

Institutions.—At the beginning of the 1960-61 academic year there were in Canada 354 institutions of higher education offering one or more years of degree-credit courses. Table 7 gives their distribution by province. Of the total, 304 were under the control of religious bodies (264 Catholic), 23 under provincial government control, three under Federal Government control, and 24 under private non-denominational control.

7.—Number of Institutions of Higher Education, by Province, Academic Year 1960-61

Province	Active Degree-Granting Institutions		Other Institutions	Total
	Theology Only	Other		
Newfoundland.....	—	1	2	3
Prince Edward Island.....	—	1	1	2
Nova Scotia.....	1	8	7	16
New Brunswick.....	—	6	4	10
Quebec.....	1	7	204	212
Ontario.....	8	13	44	65
Manitoba.....	2	1	7	10
Saskatchewan.....	4	1	12	17
Alberta.....	1	1	9	11
British Columbia.....	2	1	5	8
Totals.....	19	40	295	354

Enrolment.—Full-time university-grade enrolment continued at a record high in 1961-62 with 128,894 such students in attendance. Indications are that enrolments may well be double the 1961-62 figure in about ten years. Table 8 gives figures on enrolment, by province, for the academic years ended 1959-62.

8. Full-Time Regular Winter Session University-Grade Enrolment, by Province, Academic Years Ended 1959-62

NOTE. — Figures to 1960-61 are for enrolment at Dec. 1 of the academic year indicated and comprise actual graduate enrolment reported and estimated figures for total enrolment based on data available from institutions representing about 98 p.c. of the total enrolment.

Province	1958-59		1959-60		1960-61		1961-62	
	Total	Graduate Only ¹	Total	Graduate Only ¹	Total	Graduate Only ¹	Total	Graduate Only ¹
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,080	21	1,070	21	1,240	33	1,757	17
Prince Edward Island.....	420	—	530	—	570	—	683	—
Nova Scotia.....	5,000	116	5,300	130	5,820	147	6,409	172
New Brunswick.....	3,400	64	3,700	87	4,070	90	4,533	149
Quebec.....	31,000	1,407	33,700	1,599	38,000	1,981	43,156	2,307
Ontario.....	27,800	2,037	29,400	2,211	32,100	2,599	35,871	2,903
Manitoba.....	5,300	132	5,850	204	6,360	251	6,947	294
Saskatchewan.....	4,480	109	4,860	168	5,630	210	6,329	226
Alberta.....	5,350	246	6,100	294	7,140	350	8,499	471
British Columbia.....	10,570	418	11,490	520	13,070	857	14,710	808
Totals.....	94,400	4,550	102,000	5,234	114,000	6,518	128,894	7,347

¹ All theology enrolment included as undergraduate.

Foreign enrolment has risen considerably since the end of World War II, with a larger proportion of students from countries other than the United States and Britain coming to Canadian institutions, as shown in Table 9. In 1960-61 about one of every 16 full-time university students in Canada was a resident of a country other than Canada. Hong Kong, Trinidad and Britain each accounted for over 500 students while France, India and Jamaica contributed from 100 to 300 each. Just over 100 other countries or territories were represented in the figures.

9.—Students from Other Countries in Canadian Universities, and Canadian Students in Universities in the United States and Britain, Selected Academic Years Ended 1931-61

Academic Year Ended—	Total Full-Time University Enrolment in Canada	Students with Residence in—					Total Enrolment from Other Countries in Canada ¹	Canadians Studying in—	
		United States	Britain	British West Indies	Newfoundland ¹	Other Countries		United States ²	Britain ³
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1931.....	32,926	1,506	333	54	175	236	2,304	1,313	212
1941.....	36,319	1,478	41	74	174	289	2,056	1,458	..
1951.....	68,306	1,758	164	252	...	1,014	3,188	4,528	372
1956.....	72,729	1,773	281	635	...	1,696	4,385	4,990	404
1959.....	94,400	1,984 ^r	526	1,018	...	2,460	5,988 ^r	5,432	438
1960.....	102,000	2,622	576	1,650	...	2,778	6,426	5,679	458
1961.....	114,000	2,329	640	1,150	...	3,120	7,239	6,058	..

¹ Before 1949 Newfoundland was considered as being a country outside Canada.

² Data from the Institute of International Education, New York.

³ Data from the Association of Universities of the British Commonwealth, London, England. Newfoundland is included with Canada for all years.

⁴ Includes 2,662 from all British Commonwealth countries and territories.

Graduates.—Table 10 gives figures for graduates in most faculties for the academic years ended 1959-62; breakdown by sex was not available for 1961-62 at the time of going to press.

10.—Graduates from Universities and Colleges, Academic Years Ended 1959-62

NOTE.—Figures for 1920-36 are given in the 1938 Year Book, pp. 993-997, and for 1937-58 in the corresponding table of subsequent editions.

Field of Study	1958-59		1959-60		1960-61		1961-62
	Total	Female	Total	Female	Total	Female	Total ¹
	No.	No.	No.	No.	No.	No.	No.
Graduates in Arts, Pure Science and Commerce.	8,583	2,340	9,503	2,624	10,329	2,883	12,300
Bachelors of Arts ²	6,389	2,081	7,169	2,336	7,614	2,549	11,000
Bachelors of Science (in Arts) ³	1,187	201	1,310	243	1,605	274	
Bachelors of Commerce ⁴	1,007	58	1,024	45	1,110	60	
Graduates in Applied Science.	2,299 ^r	13	2,424	14	2,610	7	2,735
Bachelors of Applied Science in Engineering.....	2,057 ^r	4	2,186	7	2,408	7	2,500
Bachelors of Architecture ⁵	91	4	98	7	84	—	110
Bachelors of Forestry.....	150	5	139	—	115	—	120
Bachelors of Fisheries.....	1	—	1	—	3	—	5
Graduates in Agriculture, Veterinary Science and Household Science.	594	212	559	251	632	286	720
Bachelors of Agricultural Science.....	294	8	248	7	306	12	320
First degrees in Veterinary Science.....	68	3	68	1	56	4	60
Bachelors of Household Science.....	232	231	243	243	270	270	340

For footnotes, see end of table, p. 310.

10.—Graduates from Universities and Colleges, Academic Years Ended 1959-62—concluded

Field of Study	1958-59		1959-60		1960-61		1961-62
	Total	Female	Total	Female	Total	Female	Total ¹
	No.	No.	No.	No.	No.	No.	No.
Graduates in Education, Library Science and Social Service	2,134	850	2,590	1,155	3,110	1,214	3,960
First degrees in education or pedagogy.....	1,740	609	2,102	862	2,430	963	3,200
Librarian degrees and diplomas.....	85	66	106	88	199	130	260
Physical education first degrees and diplomas.....	103	42	135	57	231	66	230
Social service degrees and diplomas.....	197	133	247	148	250	115	270
Graduates in Medicine and Related Studies	1,751	469	1,792	489	1,777	581	1,885
Medical doctors.....	842	45	879	66	842	65	860
Dentists.....	196	7	219	8	179	8	215
Pharmacists.....	296	53	263	57	281	86	340
First degrees in nursing.....	230	230	237	237	301	301	300
Physiotherapy and occupational therapy.....	130	130	119	119	118	118	115
Chiropractic.....	35	3	54	1	28	2	20
Optometry.....	22	1	21	1	28	1	35
Graduates in Law and Theology	1,592	72	1,699	84	1,556	85	1,570
First degrees and equivalent diplomas in law.....	722	28	840	33	697	35	670
Roman Catholic theological colleges.....	542	—	564	—	562	—	600
Protestant theological colleges ²	328	44	295	51	297	50	300
Other First Degrees and Equivalent Diplomas	101	77	143	114	133	97	195
Bachelors of Fine and Applied Arts.....	8	5	16	10	11	8	15
Bachelors of Interior Design.....	14	13	9	9	9	8	15
Journalism.....	20	9	26	19	25	14	25
Bachelors of Music.....	59	50	92	76	88	67	140
Graduate and Honorary Degrees	2,388	401	2,721	419	3,163	526	..
Honorary doctorates.....	303	10	237	10	265	14	..
Doctorates in course.....	284	30	281	22	305	26	325
Masters of Arts ³	1,012	247	1,217	260	1,431	304	} 2,800
Masters of Science ⁴	463	46	583	42	677	49	
Licences (except in Theology) ⁵	213	66	304	83	367	126	
Bachelors of Divinity.....	113	2	99	2	118	7	

¹ Estimated.² Includes Bachelors of Letters and Social Science.³ Some institutions include

Science degrees in Arts.

⁴ Includes Bachelors of Accounting and Secretarial Science.⁵ Includes

diplomas in Architecture from the School of Fine Arts of Montreal.

⁶ Includes all diplomas and degrees

except for Bachelors of Divinity.

⁷ Includes M. Com., M. Ed., M. Paed., M. S.W., as well as M.A. In some

institutions, M.Sc. degrees are included with M.A.'s.

⁸ Includes M.A. Sc., M.S.A., M.Sc.F., M. Arch., M.V.

Sc., M.Sc. Dent., M. Surgery (where conferred separately), as well as M.Sc.

⁹ The "Licence" in the French

language universities is the next degree in advance of the Bachelor.

Teaching Staffs.—Table 11 shows the trend in university teaching staffs since 1953.

11.—Full-Time Teaching Complement in Universities and Colleges, Academic Years Ended 1953-62

NOTE.—Figures from 1957 are estimates based on returns from institutions representing about 50 p.c. of the total enrolment. Figures for all years include some research personnel and junior and sessional lecturers and assistants.

Academic Year Ended—	Teachers	Academic Year Ended—	Teachers
	No.		No.
1953.....	6,047	1958.....	7,500
1954.....	6,503	1959.....	8,200
1955.....	6,474	1960.....	9,000 ⁺
1956.....	6,719	1961.....	9,600 ⁺
1957.....	7,000	1962.....	10,000

Table 12 gives median salaries, by rank and region, for the staffs of 17 major institutions for 1961-62.

12.—Median Salaries of Teachers at 17 Universities, Academic Year 1961-62

NOTE.—Institutions include: *West*—Universities of Manitoba, Saskatchewan, Alberta, British Columbia; *Central*—Bishop's, McGill, Queen's, Toronto, Victoria, Trinity, McMaster, Western Ontario; *Atlantic*—Acadia, Dalhousie, St. Francis Xavier, Mount Allison, New Brunswick.

Rank	Region				Staff Complement
	Atlantic Provinces	Central Provinces	Western Provinces	Total	
	\$	\$	\$	\$	No.
Deans.....	10,750	17,063	15,563	15,577	102
Professors.....	9,625	12,896	12,631	12,619	987
Associate professors.....	7,836	9,748	9,876	9,703	1,138
Assistant professors.....	6,481	7,749	7,783	7,687	1,449
Instructors and lecturers.....	5,190	6,045	6,172	6,039	870
Totals, All Ranks.....	6,991	8,887	8,876	8,646	4,557¹

¹ Includes 11 ungraded professors not distributed above.

Finances.—Table 13 gives a historical series of the finances of universities, which by 1958 represented over 90 p.c. of total full-time university enrolment. Institutions omitted are mainly those conducted by religious orders where teachers receive little or no cash salary and whose finances are not, therefore, comparable to those of other institutions. Since 1952, the reporting universities have received more than one-half of their revenue from government grants and a very small amount from municipal councils.

Beginning with the academic year 1951-52, the Federal Government has been providing university grants to help meet current operating costs. These grants were originally paid on the basis of 50 cents per head of population in each province and the eligible institutions receive their share of the provincial allotment according to the number of full-time students in undergraduate and graduate courses. The rate of grant was increased to \$1 per capita in 1956-57 and to \$1.50 in 1958-59. The Province of Quebec did not accept this grant for the years up to 1955-56. From 1956-57 to 1959-60 the payments refused by Quebec were held in trust by the Canadian Universities Foundation, which administers the fund. In 1960-61 the Quebec Government and the Federal Government negotiated a new tax-sharing agreement under which Quebec provides its own grants from income tax receipts. Table 14 gives details of the federal grants for each of the academic years from 1959-60 to 1961-62. The figures for 1961-62 include an adjustment made to the 1960-61 grants resulting from a revision of the 1960 population estimates made when actual census figures for 1961 became available.

The Federal Government also provides assistance to universities through the University Capital Grants Fund which is administered by the Canada Council. The original amount in the fund was \$50,000,000, to be granted in amounts not exceeding 50 p.c. of specific building or capital equipment projects, having regard to the population of each province. In the first year of its operation (ended Mar. 31, 1958), grants amounting to \$1,100,000 were authorized and \$1,300,000 was actually paid. Up to the end of March 1961, a total of \$25,500,000 in grants had been authorized and \$19,800,000 actually paid. Grants are paid in four equal instalments spread over the period of construction so that there is a time lag between approval and payment.

The Canada Council was also endowed with an additional \$50,000,000 for the provision of scholarships or other assistance in the fields of the arts, humanities and social sciences. (See also pp. 321-323.)

13.—Current Income and Expenditure of Universities and Colleges, Academic Years Ended 1949-58

NOTE.—Up to 1953, institutions included represent about 80 p.c. of the total full-time university-grade enrolment. For the years 1954-58 figures given are an estimate of the total current revenue and expenditure of universities and colleges.

Academic Year Ended—	Current Income					Total Current Expenditure
	Endowments and Investments	Government Grants	Student Fees ¹	Miscellaneous	Total ¹	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1949.....	2,568	16,218	15,959	4,845	39,590	39,197
1951.....	2,950	16,959	15,439	5,140	40,458	40,697
1951.....	3,127	18,733	14,025	4,647	40,532	40,792
1952.....	3,185	25,284	14,544	5,208	48,221	47,195
1953.....	2,979	26,564	14,260	6,675	50,468	50,116
1954.....	3,651	41,786	21,285	9,037	75,759	76,057
1955.....	4,692	45,107	21,600	8,938	80,337	80,427
1956.....	5,614	49,911	25,105	10,733	90,763	86,521
1957.....	4,375	57,118	30,867	10,304	102,664	102,991
1958.....	4,642	67,833	31,632	11,156	115,263	114,978

¹ Board and lodging not included.

14. Federal Government University Grants, by Province, Academic Years Ended 1960-62

NOTE.—Figures for 1952-55 are given in the 1959 Year Book, pp. 356-357; for 1956-58 in the 1960 edition, p. 397; and for 1959 in the 1961 edition, pp. 359-360.

Province and Academic Year		Institutions	Eligible Enrolment	Total Grants	Grant per Eligible Student
		No.	No.	\$	\$
Newfoundland.....	1960	1	1,060	673,500	635.38
	1961	1	1,238	688,500	556.14
	1962	1	1,757	672,225	390.88
Prince Edward Island.....	1960	2	525	153,000	291.43
	1961	2	563	154,500	274.42
	1962	2	683	157,784	229.79
Nova Scotia.....	1960	13	5,284	1,074,000	203.26
	1961	13	5,802	1,084,500	186.92
	1962	13	6,372	1,113,834	173.50
New Brunswick.....	1960	6	3,644	885,000	242.87
	1961	6	4,059	900,000	221.73
	1962	6	4,532	880,812	197.90
Quebec ¹	1960	11	32,153	7,498,500	233.21
	1961	...	...	...	...
	1962	...	...	...	...
Ontario.....	1960	30	26,068	8,928,000	342.49
	1961	31	28,664	9,133,500	318.64
	1962	31	31,999	9,325,428	292.33
Manitoba.....	1960	8	5,746	1,327,500	231.03
	1961	8	6,233	1,348,500	216.35
	1962	8	6,853	1,395,065	201.74
Saskatchewan.....	1960	13	4,742	1,353,000	285.32
	1961	13	5,474	1,365,000	249.41
	1962	13	6,182	1,397,189	224.49
Alberta.....	1960	6	5,863	1,864,500	318.01
	1961	6	6,810	1,924,500	282.60
	1962	6	8,080	2,008,685	247.27
British Columbia.....	1960	5	11,289	2,355,000	208.61
	1961	5	12,861	2,409,000	187.31
	1962	5	14,418	2,409,060	169.48
Totals¹.....	1960	95	96,374	26,112,000	270.94
	1961	85	71,704	19,008,000	265.09
	1962	85	80,876	19,360,082	240.02

¹ See text on p. 311 re Quebec.

Subsection 3.—Vocational Education

Canadian vocational courses and training below university level are organized either in formal classes and training shops or in the form of informal on-the-job training. However, very often the two methods complement each other so that, for instance, an apprentice having a contract with and working for a private firm may attend a provincial trade school on a part-time or full-time basis.

Most formal vocational education is sponsored by public bodies, either by local school boards at their high schools or directly by provincial governments in trade schools and technical institutes. Private vocational schools supplement the publicly supported training facilities to quite an extent and some industrial firms train their own skilled manpower.

Table 15 summarizes the data on full-time training classes. The duration of these classes may vary from three weeks taken annually by indentured apprentices at provincially operated trade schools, to two-year vocational high school courses or four-year post-secondary courses offered in provincial technical institutes. Numerous skills are taught, ranging from short courses in welding or typing to extended courses for instrument technicians or aircraft maintenance men. Students taking two-year or three-year vocational courses in public secondary schools may, upon completion, enter employment or may continue other formal training in a trade school or a technical institute.

In addition to the full-time vocational courses, a great variety of part-time instruction is offered by both public and private institutions as an alternative to full-time training or as an attraction to the individual interested in a hobby.

15.—Full-Time Enrolment in Vocational Courses, School Year 1959-60

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Publicly Sponsored—						
Trade courses.....	888	186	1,318	982	7,937	1,636
Vocational high school courses....	346	122	817	4,734	20,306	54,019
Post-secondary technical courses..	—	—	19	56	6,660	2,714
Apprenticeship courses.....	272	—	246	98	1,454	2,223
Privately Sponsored—						
Trade school courses.....	—	—	139	—	5,208	2,349
Business school courses.....	—	568	—	586	6,599	5,188
Totals.....	1,506	3,415		6,456	48,164	68,129
	Man.	Sask.	Alta.	B.C.	Not Specified	Canada
	No.	No.	No.	No.	No.	No.
Publicly Sponsored—						
Trade courses.....	2,303	2,044	2,667	4,020	—	23,981
Vocational high school courses....	2,116	4,120	10,697	7,384	—	104,661
Post-secondary technical courses..	—	64	678	92	—	10,283
Apprenticeship courses.....	781	913	3,615	300	—	9,902
Privately Sponsored—						
Trade school courses.....	619	340	761	563	1,601	11,580
Business school courses.....	1,160	945	1,617	1,921	—	18,584
Totals.....	6,979	8,426	20,035	14,280	1,601	178,991

Subsection 4.—Adult Education

Surveys of adult education for the school years ended in 1958, 1959 and 1960 have shown increases in enrolment in classes and courses and in attendance at public lectures and related events.

Data for the year 1959-60 indicate a total enrolment of 664,046 in part-time classes and courses under the auspices of universities and colleges, federal and provincial government departments and agencies, public libraries, teacher-training institutions and private business colleges. Government assisted or operated classes represented 67.0 p.c. of this enrolment and universities and colleges 25.9 p.c. Similar activities are also carried on by private and voluntary associations, employers, churches, and the like. On the basis of a survey of participants in June 1960, it is estimated that the agencies in the regular survey of 1959-60 represented about 60 p.c. of the total part-time enrolment in classes and courses in Canada.

Enrolment in 1959-60 was distributed among the following types of courses: 23.5 p.c. in academic subjects leading to a high school diploma or university degree; 42.0 p.c. in vocational, industrial, commercial, agricultural, home economics and applied arts courses, and professional training or refresher courses in medicine, science and executive development; and 34.6 p.c. in informal non-credit courses in social education and cultural subjects, such as family life education, citizenship and public affairs, health education, fine arts, religion, philosophy and languages. About 10 p.c. of the enrolment reported was in correspondence courses. According to the June 1960 participation survey, a typical participant in adult education classes and courses was male, married, about 31 years of age and had completed secondary schooling.

Other adult education activities reported included public lectures, film showings, art exhibits, guided tours, musical and dramatic performances, and radio and TV discussion groups. The total attendance reported for these events was 2,698,034, just over half by universities and colleges, 39.7 p.c. by government departments and agencies, and the remainder by public libraries.

In addition to the above-mentioned programs, the institutions and agencies surveyed offered a variety of adult education services. Radio and television programs were produced, printed information materials were published, and exhibits, fairs, conferences and workshops were organized. Staff also spent time on advisory services to groups and individuals. The National Film Board and the Canadian Broadcasting Corporation played an important role in adult education through the production of cultural and informational programs for use by groups and individuals (see pp. 318-320).

16. —Adult Education Activities, School Year 1959-60 with Totals for 1958-59

Province and Sponsor	Part-Time Enrolment in—			Total Enrolment	Attendance at Public Lectures, etc.
	Academic Subjects	Vocational and Professional Training	Formal Courses		
	No.	No.	No.	No.	No.
Newfoundland—					
Universities.....	1,605	—	—	1,605	—
Government.....	1,559	1,160 ^a	943	3,662	10,308
Prince Edward Island—					
Universities.....	120	—	—	120	—
Government.....	—	463 ^a	—	463 ^a	—

For footnotes, see end of table.

16.—Adult Education Activities, School Year 1959-60 with Totals for 1958-59—concluded

Province and Sponsor	Part-Time Enrolment in—			Total Enrolment	Attendance at Public Lectures, etc.
	Academic Subjects	Vocational and Professional Training	Formal Courses		
	No.	No.	No.	No.	No.
Nova Scotia—					
Universities.....	2,466	235	1,443	4,144	29,680
Government ¹	1,101	6,976 ²	1,903	9,980	—
New Brunswick—					
Universities.....	4,012	229	494	4,735	11,800
Government ¹	1,382	4,726 ²	2,450	8,538	28,529
Quebec—					
Universities.....	16,902	5,957	7,064	29,923	208,363
Government ¹	21,142	47,725 ²	42,555	111,422	144,620
Ontario—					
Universities.....	18,509	17,433	21,568	57,510	61,298
Government ¹	27,088	66,728 ²	48,506	142,322	62,126
Manitoba—					
Universities.....	4,454	2,590	1,422	8,466	61,842
Government ¹	4,004	17,486 ²	12,830	34,320	260,337
Saskatchewan—					
Universities.....	5,617	6,712	4,108	16,437	90,154
Government ¹	6,673	10,140 ²	6,091	22,904	383,702
Alberta—					
Universities.....	3,573	7,031	14,698	25,302	695,815
Government ¹	7,862	11,460 ²	5,547	24,869	31,000
British Columbia—					
Universities.....	6,802	7,650	9,043	23,495	222,447
Government ¹	10,384	16,399 ²	27,263	54,046	17,300
Federal Government.....	10,494	3,965 ²	17,807	32,266	133,413
Public libraries.....	—	—	3,878	3,878	245,300
Business colleges.....	—	23,185	—	23,185	—
Teacher-training institutions.....	—	20,454 ²	—	20,454 ²	—
Totals, 1959-60.....	155,729	278,704	229,613	664,046	2,698,034
Totals, 1958-59.....	144,046	268,994	207,699	620,739	2,329,395

¹ Operated and assisted by federal and provincial departments and agencies.² 1958-59 figure.

PART II.—CULTURAL ACTIVITIES RELATED TO EDUCATION

Section 1.—Art and Education*

Fine Art Schools, Galleries and Organizations.—Fine art appears as an elective subject of the faculty of arts in a number of universities, where it may be taken as one of five, six or more subjects for a year or two. In Mount Allison University, N.B., and in the Universities of Saskatchewan and Manitoba, there is a sufficient number of courses to allow the taking of a Bachelor degree with specialization in fine art. At the University of Toronto an Honour B.A. in art history and archaeology is offered, as well as graduate work in this field. Departments of fine art were opened by McGill University in 1948-49, by the University of British Columbia in 1949-50 and by the University of Alberta in 1953-54; McMaster University reopened its department in 1951.

* Revised under the direction of the Director of the National Gallery of Canada, Ottawa.

There are also schools of art not requiring any fixed academic standing for admission, as they are more concerned with the technical development of the artist. The most widely known of these are:—

- Nova Scotia College of Art, Halifax, N.S.
- École des Beaux-Arts, Quebec, Que.
- École des Beaux-Arts, Montreal, Que.
- School of Art and Design, Montreal Museum of Fine Arts, Montreal, Que.
- Ontario College of Art, Toronto, Ont.
- University of Manitoba School of Art, Winnipeg, Man.
- School of Art, Regina College, Regina, Sask.
- Provincial Institute of Technology and Art, Banff School of Fine Arts, Banff, Alta.
(affiliated with the University of Alberta, Edmonton)
- Vancouver School of Art, Vancouver, B.C.

Courses in these schools vary in length with the requirements of the individual student but may extend over as many as four years. Summer schools of art are sponsored by some of the foregoing institutions, by universities, and by various independent groups.

Public art galleries in the principal cities perform valuable educational services among adults and children. Children's Saturday classes, conducted tours for school pupils and adults, radio talks, lectures and often concerts are features of the programs of the various galleries. Many of these institutions supply their surrounding areas with travelling exhibitions, and organizations such as the Maritime Art Association, the Western Canada Art Circuit, the Art Institute of Ontario and the Queen's Art Circuit have been founded to carry on the work on a regional basis. The National Gallery of Canada has a nation-wide program of this nature. It is the third largest circulating agency in North America. The principal art galleries are:—

- Beaverbrook Art Gallery, Fredericton, N.B.
- Montreal Museum of Fine Arts, Montreal, Que.
- National Gallery of Canada, Ottawa, Ont.
- Public Library and Art Museum, London, Ont.
- Art Gallery of Toronto, Toronto, Ont.
- Art Gallery of Hamilton, Hamilton, Ont.
- Winnipeg Art Gallery, Winnipeg, Man.
- Norman Mackenzie Art Gallery, Regina, Sask.
- Edmonton Art Gallery, Edmonton, Alta.
- Calgary Allied Arts Centre, Calgary, Alta.
- Vancouver Art Gallery, Vancouver, B.C.
- Art Gallery of Greater Victoria, Victoria, B.C.

Other Art Organizations.—The leading art organizations of national scope, exclusive of museums and art galleries, include the following:—

- Association of Canadian Industrial Designers
- Canadian Arts Council
- Canadian Group of Painters
- Canadian Guild of Potters
- Canadian Handicrafts Guild
- Canadian Museums Association
- Canadian Society of Graphic Art
- Canadian Society of Painter-Etchers and Engravers
- Canadian Society of Painters in Water Colour
- Canadian Society of Landscape Architects and Townplanners
- Community Planning Association of Canada
- Federation of Canadian Artists
- Royal Canadian Academy of Arts
- Royal Architectural Institute of Canada
- Sculptors Society of Canada.

The National Gallery of Canada.—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquis of Lorne, then Governor General, had recommended and assisted the founding of the Academy and among the tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. The group of pictures that formed the nucleus of the collection was selected by the Marquis. Until 1907 the National Gallery

was under the direct control of a Minister of the Crown but in that year, in response to public demand, an Advisory Arts Council consisting of three laymen was appointed by the government to administer grants to the National Gallery. Three years later, the first professional curator was appointed.

In 1913, the National Gallery was incorporated by Act of Parliament (RSC 1952, c. 186) and was placed under the administration of a Board of Trustees appointed by the Governor General in Council; its function was to encourage public interest in the arts and to promote the interests of art throughout the country. Under such management, the Gallery increased its collections and developed into an art institution worthy of international recognition. Today, the Gallery administration comes under the aegis of the Minister of Citizenship and Immigration. The Board of Trustees, now composed of nine members representing all sections of Canada, meets twice annually.

In 1960, the Gallery entered a new era in its history when the entire national collection and the staff and equipment necessary to its maintenance was transferred to new modern quarters—the Lorne Building in downtown Ottawa—and, for the first time, the Gallery had adequate well-lighted space for hanging its permanent works of art and for displaying travelling exhibitions.

The Gallery's collections are of indisputable taste and quality. They have been built up along international lines and give the people of Canada an indication of the origins from which their national tradition is developing. The collection of Canadian art, the most extensive and important in existence, is continually being augmented by the purchase of works from the Biennials of Canadian Art and other sources. The collections of Old Masters include twelve important works acquired from the Liechtenstein collection; extensive war collections; the Massey collection presented to the Gallery during 1946-50 by the Massey Foundation; a collection of French paintings; prints and drawings; and diploma works of the Royal Canadian Academy. The prints and drawings collection, established in 1921 and the first to be organized in a Canadian art gallery, now consists of more than five thousand items.

The services of the Gallery include the operation of a reference library open to the public which contains more than 10,000 volumes and periodicals on the history of art and other related subjects; the operation of an Exhibition Extension Service which prepares and circulates travelling exhibitions, provides educational services such as lectures offered to the general public across Canada, and organizes guided tours for visitors to the Gallery at Ottawa; produces publications, films, reproductions, didactic exhibitions and other aids to art appreciation; and assists Canadian artists to participate in important international exhibitions such as the Biennials held in Paris, Venice and São Paulo. The Conservation and Scientific Research Division of the Gallery handles requests for technical information, investigations and restoration of paintings and other specialized problems concerning the handling of precious works of art. It is intended that the research laboratories will become the national centre for scientific research in the conservation of works of art.

Section 2.—Museums and Education

Modern museums, in Canada and elsewhere, are breaking away from the old concept of repositories and are assuming an important role as educational and cultural centres. They have an advantage over other agencies of education in that they are able to show actual, original objects rather than merely offering descriptions or pictures of such objects. Canadian museums of history and science offer many educational services to the public in addition to providing exhibits that are both interesting and informative. The following museums have staff members who are specifically charged with organizing programs in education and providing extension services:—

Nova Scotia Museum, Halifax, N.S.
McGill University Museum, Montreal, Que.
National Museum of Canada, Ottawa, Ont.
Royal Ontario Museum, Toronto, Ont.
Saskatchewan Museum of Natural History, Regina, Sask.

Other museums that conduct educational and extension programs using the regular curatorial and administrative staff are:—

The New Brunswick Museum, Saint John, N.B.
Museum of the Province of Quebec, Quebec, Que.
The Manitoba Museum, Winnipeg, Man.
Provincial Museum of Natural History and Anthropology, Victoria, B.C.

Direct work with schools may involve the holding of classes within the museum or visits of museum lecturers, with exhibits, to the schools. More informal are the guided tours for visiting school classes, the lending of specimens, slides, filmstrips or motion picture films to schools, and the training of student-teachers in the educational use of the museum. A number of museums have special programs for children, not directly associated with school work. These include Saturday lectures and film showings, activity groups, nature clubs, and field excursions.

For adults, museums offer series of lectures or film showings from autumn to spring, and possibly some special showings during the tourist season. Guided tours for adult groups are usually available throughout the year. Staff members may be sent to give lectures to service clubs, church groups, parent-teacher associations, and hobby clubs. The latter, such as naturalists' groups, mineral clubs and astronomy societies, may use the museum as their headquarters. Travelling exhibits are prepared for showing at local fairs, historical celebrations and conventions. At least seven Canadian museums have had regular radio or television programs, and others have made occasional contributions. Some historical museums have annual events during which the arts, crafts or industries represented by the exhibits are demonstrated to the public.

Through such activities and methods, Canadian museums serve as important adjuncts to the educational system and as centres for informal education, both juvenile and adult. Thus, they take their place with public libraries as major auxiliaries in the educational program of Canada.

Section 3.—The Educational and Cultural Functions of the Canadian Broadcasting Corporation

Many hours of educational or semi-educational programs are broadcast annually by the Canadian Broadcasting Corporation in English and in French. Whether these programs are directed to children or adults, entertainment is combined with information whenever possible. Spoken-word programs, presented as readings, talks, discussions, documentary programs, dramatizations or in forms combined with music, cover a very wide range of interests.

Pre-school Broadcasts.—A number of programs are planned for children from three-and-a-half to six years of age. The aim is to have these at the same time educational and entertaining. Both *Playroom* (radio) and *Nursery School Time* (television) base their planning on the advice of kindergarten and nursery school experts. The topics acquaint the child with new and interesting aspects of life about him, in his home and in his community.

The English television network regularly carries the production *Chez Hélène* to introduce the French language to the pre-school child by means of the successful Tan-gau method of instruction. In another television series—*The Friendly Giant*, a highly popular story-telling program—entertainment is combined with an effort to develop in the child an awareness of social values.

School Broadcasts.—The CBC provides an active schedule of school broadcasts which are planned according to recommendations made to the School Broadcasts Department by a group of educators representing each of the provincial departments of education. This body is known as the National Advisory Council on School Broadcasting. The

programs produced have the aim of enriching the curricula, adding to the students' comprehension and appreciation of a topic through the use of the varied resources of radio and television. For example, in radio, an annual presentation of a Shakespearean play by the best actors in the country gives many students across Canada their only opportunity to hear a dramatization of such a play. The radio schedule each year also contains dramatizations of events in Canadian history, along with many other topics. In television, the number of programs on the national level has been greatly expanded to include, during 1962, two half-hour periods weekly from the middle of October to the end of May. The schedule covers a number of subjects for grades from junior elementary to senior high. Highlights of the present schedule include a dramatization of *Macbeth*, interviews with outstanding Canadians, current events and a series on the orchestra.

Leisure Programs for Children.—Programs that do not relate to a specific school curriculum but still have a broadly educational or informational purpose are presented for children. The program *Junior Magazine* for children of nine to fourteen years of age has specific segments depicting Canadian life and the new world of science. Musical concerts are presented by young artists of talent and competence and for these concerts a CBC Youth Choir has been formed. On the French network, programs such as *Domino* and *Les Apprentis* fulfil a purpose similar to that of *Junior Magazine*. Other programs presented for children by the French network include *Fon Fon*, *Coucou*, *Orientation*, *Opinions*, *Images en tête*, *Pierres vivantes* and *À la pointe de l'exploration*.

A number of experiments in programming for both the English and the French networks have begun, such as the natural science program *La vie qui bat*, which appears in English under the title *This Living World*.

Adult Education.—Programs of an adult education nature are presented frequently by the CBC on its radio and television services and are planned in co-operation with various educational organizations. The CBC is an active participant in the work of the Joint Planning Commission, a body established by the Canadian Association for Adult Education for exchange of information and co-ordination of plans for adult education in Canada.

Citizens' Forum, a series telecast for the past seven years, uses discussions, public debates and small seminars to describe important issues of the day. It is arranged jointly by the Canadian Association for Adult Education and the CBC. Its French counterpart, *Les idées en marche*, has been planned in co-operation with La Société canadienne d'éducation des adultes (later replaced by *Place publique*). Similar types of programs are prepared specially for rural listeners under *National Farm Radio Forum* which is arranged by the CBC in co-operation with the Canadian Federation of Agriculture and the Canadian Association for Adult Education. This unique educational program involves listening groups who continue the discussion of the topic at the conclusion of the program and funnel their opinions to provincial and national centres for use and distribution. Other daily service and educational programs are provided for farmers. *Country Calendar* and *Country-time* are weekly half-hour TV programs of a service and educational nature designed to keep farmers and the general public in tune with agricultural conditions and developments. *Le réveil rural* on radio and *Les travaux et les jours* on television are French-language counterparts of the English farm programs.

For the past ten summers the evening sessions of the Couchiching Conference have been broadcast. This week-long conference, organized jointly with the Canadian Institute on Public Affairs, examines Canadian and international affairs in open meetings and group discussions. Other radio programs of an educational nature are *Soundings*, a series of radio documentaries dealing with community and social affairs, human relations and mental health; *Science Review*, which examines important discoveries in the field of the natural sciences and their branches; *Business Barometer*, designed to inform listeners of the developments in Canada's economic life; *Anthology*, a literary program with emphasis on Canadian writers; *Time for French*, a program designed specially for the woman in

the home; *University of the Air*, a series varying from four to eight talks prepared and broadcast by distinguished professors in their particular fields; and, on the French radio network, *L'université radiophonique internationale*, a series of talks exchanged with other countries on cultural and scientific subjects.

On the French network, *Les Chansons de la maison* presents a series of programs relating to parents and children, and general questions sent in by parents are answered by psychologists. For women listeners, the daytime program *Fémina* is presented three times a week. The French network also broadcasts a number of weekly programs dealing with fine arts, music, literature, theatrical arts, sciences, religion and philosophy, under the auspices of Le Service des émissions éducatives et d'affaires publiques.

In addition to *Citizens' Forum*, regular television programs are *Close-Up*, *Premier Plan* and *The Critical Years*. The first two present weekly half-hour interview and documentary programs in which the emphasis is on the programs involved. The latter offers six one-hour documentaries on the background of significant issues, events and ideas, both international and domestic. *Inquiry* is a weekly program on national affairs produced in Ottawa. *The Lively Arts* is a weekly program of insight into the creative process. *The Nature of Things* describes the work of scientists and science for an audience whose only preparation may be curiosity about the world around them. *Open House*, a daily television program for women, presents information on a wide variety of commodities and services, discusses topics such as parent education and mental health, and interviews people of note. *Fighting Words* gives an opportunity for discussion of controversial issues. *Explorations*, a series of documentaries and dramatizations, examines questions in the fields of sociology and history. Special programs on the Winter Conference of the Canadian Institute on Public Affairs are also telecast; this three-day conference examines sociological questions in open meetings and group discussions.

In co-operation with universities in Toronto, Montreal and Ottawa, locally broadcast television series are prepared under the title *Live and Learn*. These programs are designed to give a general appreciation of academic subjects such as physics, chemistry, literature and psychology. Experimentally, the University of Toronto and the CBC have produced *Live and Learn Russian*, by which viewers could prepare themselves for university course credits. Other experiments in the production of courses for university credit are in progress in Montreal.

Three agencies have worked with the CBC in the preparation of a Toronto series of lessons in basic English. For new Canadians, the series requires only that viewers have literacy in another language, and that they purchase study materials through newspapers published in their native language. The co-operating organizations are the Metropolitan Educational Television Association, the Province of Ontario, the federal Department of Citizenship and Immigration, and Canadian Scene.

Section 4.—The Educational and Cultural Functions of the National Film Board

The National Film Board, an agency of the Federal Government, was established by Act of Parliament in 1939 and reconstituted by the National Film Act in 1950. In the years since its establishment, the Board has grown from a supervisory body over Canadian Government motion picture activities to a national documentary film-producing and -distributing organization whose films about Canada are seen wherever people may freely assemble. The Board also produces and distributes filmstrips and still photos on Canadian themes in accordance with its primary function outlined in the Act "to initiate and promote the production and distribution of films in the national interest". Films are produced primarily in the English and French languages and, whenever possible foreign language versions are prepared to increase the usefulness of Board films in foreign countries.

The 16mm. community film program is based on a nation-wide system of film circuits, film councils and libraries, strongly supported by organizations and individuals engaged in community activities. There are more than 700 national, provincial and community film distribution outlets from which thousands of 16mm. prints are available for public use throughout the country. These prints are acquired for circulation by purchase or by loan from the Board.

A large part of the 16mm. community film audience is reached through classroom showings, indicating progress in the development of audio-visual aid programs in Canadian schools and universities. Another noticeable trend is the more selective use of films by community organizations and groups for particular purposes. This is attributed in part to the availability of Board productions which present series of film studies related to central themes, and to the availability of a broad range of topics which include individual films particularly suited to group objectives and programs.

Films produced by the Board are shown in commercial theatres and on television in Canada and abroad and newsreel features are also issued regularly for theatrical and television purposes. Distribution of theatrical subjects is arranged by contract with commercial distributing organizations.

A substantial proportion of the Board's production and distribution program is concerned initially with television at home and abroad. Series of original films are shown regularly over English and French language television networks in Canada. Individual films from the Board's extensive general library are available to CBC and privately operated stations. Abroad, because of expanding television facilities in many countries, Board films are seen by audiences which could not otherwise be reached.

In addition to commercial distribution through theatres and television in other countries, 16mm. print circulation is carried on through posts of the Departments of External Affairs and Trade and Commerce, through National Film Board territorial offices at London in England, New York and Chicago in the United States, New Delhi in India, and Buenos Aires in Argentina, as well as through libraries operated by various education agencies. Hundreds of prints of National Film Board films are also sold in other countries each year. Exchange agreements are in effect between the Board and government film-producing organizations in other lands; this means that films of various nations are freely exchanged with those of Canada, aiding international understanding.

The National Film Board maintains a library of more than 150,000 still photographs, which are available at nominal cost to magazines, newspapers and other periodicals wishing to present current information about Canada.

Section 5.—The Canada Council

During the postwar years in Canada it was felt that it would be in the national interest to give encouragement to institutions expressing national feeling, promoting common understanding and adding to the variety and richness of Canadian life. The Royal Commission on National Development in the Arts, Letters and Sciences was accordingly appointed in 1949 to recommend the most effective means of supporting such institutions. The Commission reported that almost alone among the major nations of the world, Canada had no government-supported body to assist the arts, no executive body to deal with the question of Canada's cultural relations abroad, no clearing house or centre of information on the arts and no national commission for UNESCO.

As a result of recommendations made by the Massey Commission, the Canada Council was established in 1957 to promote the study, the enjoyment and the production of works in the arts, humanities and social sciences. A sum of \$100,000,000 from the public treasury was granted to the Council, one-half of which was placed in a University Capital Grants Fund to assist institutions of higher learning to expand their building facilities in the arts, humanities and social sciences and the remainder set up as an Endowment Fund providing a guaranteed annual income of about \$2,900,000.

The Council is made up of 19 members appointed by the Prime Minister for terms of three years, plus a chairman and a vice-chairman who are selected for five-year terms. Members are ineligible for reappointment during the 12 months following their second consecutive term on the Council. The organization must meet at least three times a year to consider applications made to it by organizations and individuals across the country. The day-to-day administrative work is carried out by a permanent staff in Ottawa.

University Capital Grants Fund.—One of the principal responsibilities of the Council is toward this country's institutions of higher education. It has been estimated that in the next decade university facilities will have to be doubled. Of some 100 colleges polled by the National Conference of Canadian Universities and Colleges in 1959, only nine reported no immediate plans for expansion. The University Capital Grants Fund was established to help meet this need.

The Fund enables the Council to make grants to universities and other institutions of higher learning by way of capital assistance in respect of building projects, with the following limitations: (1) a grant for any one project may not exceed one-half the total expenditure made in respect of that project; (2) in any province the aggregate of the grants made may not exceed an amount that is in the same proportion to the aggregate amount credited to the University Capital Grants Fund as the population of the province (latest census) is to the aggregate population of the provinces in which there is a university or other similar institution of higher learning. By the end of 1961, \$30,000,000 had been authorized for payment by the Council. A total of 55 institutions had drawn upon the Fund for a wide variety of buildings with libraries, classrooms and residences claiming the major share.

Aid to Individuals.—It has been estimated that, to maintain academic standards at the present level, Canada will have to produce between 8,000 and 10,000 university teachers in the next ten years. In 1957, less than 10 p.c. of the graduate fellowships available in Canada were for studies in the humanities and social sciences. The Canada Council therefore allocated over \$1,000,000 from the income of the Endowment Fund to the establishment of a scholarship and fellowship program to help remedy this situation. In four years, more than 1,400 scholars have been aided through awards at the master's, doctorate and postdoctorate level. A further stimulus to academic pursuits is provided in other ways by the Council. Grants are made to universities to enable them to bring outstanding lecturers to their campuses. Travel grants are awarded to permit Canadians to attend international conferences and thus maintain contact with scholars from other countries.

Individual assistance is also given in the arts by the Council. By the end of 1961, 541 scholarships had been awarded to enable singers, dancers, painters, writers and other creative artists to continue their studies or perfect their arts. Other artists had benefited from the Council's program of commission grants; such grants enable theatres, orchestras, soloists, art galleries or museums to commission and perform or display original works by Canadian artists.

Aid to Organizations.—The Council's responsibility does not end with its assistance to the individual; it must also seek to create a wider market and a more receptive audience for the works of the country's creative talents. Accordingly, a large proportion of the revenue from the Endowment Fund is devoted to a program of assistance to organizations in the arts and letters. Since income from this source is strictly limited, the Council must decide whether it will support the best, which would involve a very large investment in some of the major population centres, or whether it will attempt to cover all areas of the country—a policy which, if carried to its fullest extent, would rapidly exhaust the funds available.

The Council therefore seeks to strike a balance between the two aims by combining grants for excellent service in local or regional areas with awards to enable organizations to travel to remote parts of the country where the arts are less readily available. It also

seeks to ensure local support by insisting that organizations receiving Council grants find additional revenue from other sources. In the year ended Mar. 31, 1961, the Council gave about \$1,270,000 to organizations in the arts, humanities and social sciences. Nine symphony orchestras received a total of \$223,500 and a further \$84,600 went to other musical organizations including choirs, string orchestras and chamber ensembles. More than \$15,000 was spent to enable music groups to tour and \$4,000 was awarded to permit the commissioning of new works. Over \$470,000 was granted to promote the theatre, opera and ballet; of this amount, some \$162,000 went to the National Ballet Company of Canada, the Royal Winnipeg Ballet and Les Grands Ballets Canadiens. A total of \$82,000 went toward helping opera and \$177,500 was awarded to the theatre. Festivals in Stratford, Vancouver and Montreal received \$102,000 in assistance from the Council and a sum of \$30,000 was allocated to the Canada Council Train to introduce more Canadian students to the best Shakespearean drama. The visual arts received about \$142,000 and \$43,000 was awarded in aid to publication, bringing to just over \$1,000,000 the amount spent on the arts.

Considerably less assistance went to organizations in the humanities and social sciences since the bulk of the scholarship program is directed toward these subjects. Aid was given to visiting lecturers, to publications and to several academic projects. Altogether, \$268,700 was given for these purposes.

UNESCO.—The Act establishing the Canada Council also provided that the organization should undertake certain functions in relation to the United Nations Educational, Scientific and Cultural Organization. The Council accordingly established a National Commission for UNESCO with 26 members and approximately 30 organizations with "co-operating body status", and also provided the secretariat for the Commission. With the assistance of the National Commission, the Council is responsible for the co-ordination of UNESCO program activities in Canada, for Canadian participation in UNESCO program activities abroad, and for proposals for future UNESCO programs. In all these matters the Council works in close association with the Department of External Affairs and serves as the normal channel of communication between the Department and the Commission. In the year ended Mar. 31, 1961, the Council spent close to \$45,000 in addition to indirect administrative expenses on the UNESCO program.

Section 6.—Library Services

The National Library.—The National Library of Canada came into existence formally on Jan. 1, 1953 by the proclamation of the National Library Act (RSC 1952, c. 330). On the same date it absorbed the Canadian Bibliographic Centre, which had been engaged in preliminary work and planning since 1950. The Act established a National Library Advisory Council, consisting of the National Librarian, who serves as Chairman, the Parliamentary Librarian, and twelve appointed members, at least one of whom must be from each of the ten provinces.

By 1961, although the Library was still housed in temporary quarters and only a limited purchasing program could be undertaken, the book collection consisted of about 250,000 volumes, supplemented by micro-copies of more than 100,000 additional titles. Under the terms of the Copyright Act and the Library's own Book Deposit Regulations, 5,855 titles were received in the year ended Mar. 31, 1962, 3,097 of which were related in some direct way to Canada.

Canadiana, the Library's monthly catalogue of new books and pamphlets relating to Canada, described over 11,000 items in 1961; these included trade and general publications, and official publications of the federal and provincial governments. *Canadiana*, which has been published since 1950, is cumulated annually and a cumulated index is planned.

The National Union Catalogue lists nearly 8,000,000 volumes in more than 160 government, university, public and special libraries in all provinces. New accessions are reported regularly by these libraries, and the Union Catalogue thus forms a continuously up-to-date key to the main book resources of the country. During the year ended Mar. 31, 1961, the Reference Division was asked to locate 11,462 titles and it is noteworthy that copies of 75 p.c. of them were found in Canadian libraries. About one-third of the requests were for books in the field of science and technology and 80 p.c. were for books published since 1925.

In addition to *Canadiana*, the National Library publishes *Canadian Selections*, a short list of notable books issued in Canada during the past year, and also publishes an annual cumulation of the *Canadian Index to Periodicals and Documentary Films*.

Public Libraries.—The Dominion Bureau of Statistics has conducted surveys of public libraries since 1921. Over the years a marked trend toward centralization and amalgamation has accompanied increased urbanization. In 1960, municipal and association public libraries served 144 urban centres of 10,000 or more population, and 36 regional and 12 provincial public library organizations served scattered populations in predominantly rural areas. Many of the larger systems have branches and bookmobiles to bring service to those living at a distance from main libraries; in Newfoundland, public library service may reach remote hamlets by boat and in the Northwest Territories by aircraft. In addition, 831 municipal and association libraries in smaller communities served suburban and rural populations. During the 1950's the number of volumes held by public libraries nearly doubled, circulation more than doubled and payments for all purposes increased nearly threefold; during the same period the population to be served increased by about 22 p.c.

In addition to circulating reading material, public libraries maintain reference collections for study purposes and provide audio-visual materials such as films, filmstrips and sound recordings. Activities for special groups include stories, plays and services to schools for the younger children, club activities and assistance with projects for young adults, and courses, public lectures, displays and film showings for adults.

Public libraries in Canada are supported mainly by public funds—about 90 p.c. by local taxation and 10 p.c. by provincial grants. Payments in 1960 for staff, books and other library materials, new buildings, etc., amounted to \$1.01 per capita.

1.—Summary Statistics for All Public Libraries, 1960

Province or Territory	Population Served	Libraries	Stock of Books, Periodicals and Pamphlets	Circulation	Current Operating Payments	Full-Time Staff
	No.	No.	No.	No.	\$	No.
Newfoundland.....	459,000	3	296,000	662,000	187,473	34
Prince Edward Island.....	103,000	2	118,621	241,607	48,849	10
Nova Scotia.....	487,529	14	261,567	1,335,857	405,738	62
New Brunswick.....	225,208	6	162,128	622,568	162,357	33
Quebec.....	3,333,491	220	2,274,254	3,982,157	1,197,654	281
Ontario.....	4,791,674	498	7,558,859	30,706,994	10,569,578	1,236
Manitoba.....	749,345	16	397,442	2,196,055	649,694	104
Saskatchewan.....	910,000	82	750,735	2,160,212	809,904	121
Alberta.....	1,283,000	141	1,048,359	4,493,347	1,261,079	202
British Columbia.....	1,606,000	51	1,667,689	9,165,698	2,720,045	437
Yukon and Northwest Territories....	12,423	14	29,637	11,380	4,767	—
Totals, 1960.....	13,960,670	1,047	14,565,291	55,577,875	18,017,138	2,520
Totals, 1959.....	14,436,102	1,022	13,507,009	50,329,734	15,155,734	2,432

University, College and School Libraries.—The 1960 survey covered 35 larger university libraries, serving enrolments of 500 or more full-time students. These institutions represented 87 p.c. of the total full-time enrolment at university level in Canada. They contained 74 volumes per full-time student and their expenditure averaged \$55.72 per full-time student. In addition, there were 315 smaller universities and colleges with libraries, which together represented the remaining 13 p.c. of the full-time student enrolment.

In the 1960 survey of school libraries in centres of 10,000 or more population, it was found that centralized libraries were organized in 38 p.c. of the schools reporting. Almost 90 p.c. of the secondary schools and about 25 p.c. of the elementary schools had libraries. The average centralized school library contained about 2,500 volumes and served close to 600 pupils. Some of these libraries were operated by fully qualified professional librarians and the others by teachers with some library training.

2.—Book Stocks in the Larger Academic Libraries and Enrolment Served, by Province, Academic Year 1959-60

Province	University and College Libraries			Centralized School Libraries		
	Libraries	Volumes	Enrolment Served	Libraries	Volumes	Enrolment Served
	No.	No.	No.	No.	No.	No.
Newfoundland.....	1	49,512	1,060	4	3,852	2,373
Prince Edward Island.....	—	—	—	2	6,298	1,304
Nova Scotia.....	3	343,827	3,706	52	99,368	25,827
New Brunswick.....	2	197,626	2,743	25	69,961	12,246
Quebec.....	8	1,823,950	29,096	484	1,062,030	228,541
Ontario.....	14	2,859,019	25,694	455	1,148,437	328,651
Manitoba.....	2	300,231	4,751	68	220,965	43,333
Saskatchewan.....	1	186,717	4,179	47	123,519	18,329
Alberta.....	2	284,944	6,468	173	419,328	69,361
British Columbia.....	2	516,684	11,087	162	559,936	117,900
Totals.....	35	6,562,519	88,784	1,472	3,713,694	857,915

Special Libraries.—There are many government, business, professional and technical libraries in existence, organized to serve the special interests of the personnel concerned. The most recent survey of these libraries was for 1956-57 in which 84 Federal Government libraries reported a stock of 2,670,454 books and pamphlets and full-time staff numbering 427; 91 provincial government libraries reported 2,149,158 books and pamphlets and full-time staff numbering 283; and 154 professional, business and technical libraries reported 1,292,582 books and pamphlets and full-time staff numbering 377.

Professional Librarians.—Professional librarians, who have been awarded Bachelor of Library Science degrees after a one-year postgraduate course, direct most libraries in Canada; they comprise one-quarter to one-third of all library personnel. Their work includes administration, book selection, reference, readers' advisory, and technical services.

Shortages of professional librarians continue to exist in all types of libraries, with public and school libraries most seriously affected. However, increasing enrolment in Canada's five library schools—at the Universities of McGill, Montreal, Ottawa, Toronto and British Columbia—offers some hope of a better supply. From 1951 to 1957 the number of graduates of all the schools averaged 80 but 111 were graduated in 1960 and 157 in 1961. Enrolment for the academic year 1961-62 was 206, with the opening of a new school at the University of British Columbia. Graduates can expect a choice of positions at salaries that have improved in recent years. The median beginning salary for all 1961 graduates was \$4,600.

3. Median Salaries of Librarians in Professional Positions, 1959-60

Position	Public Libraries in Centres over 10,000 Population	Regional and Co-operative Public Libraries	Provincial Public Library Services	University and College Libraries	Total Professional Librarians
	\$	\$	\$	\$	No.
Chief Librarian.....	5,572	5,167	6,250	7,750	171
Assistant Chief Librarian.....	4,959	4,813	5,500	7,000	94
Division, Department or Branch Head.....	5,413	4,200	5,375	5,250	394
General Librarian.....	4,665	3,858	4,500	4,065	625

PART III.—SCIENTIFIC AND INDUSTRIAL RESEARCH

Section 1.—The National Research Council*

History and Organization. Organized research in Canada on a national basis dates from 1916 when the Government of Canada established the Honorary Advisory Council for Scientific and Industrial Research—now known by the short title “National Research Council”. The early Council provided for the planning and integration of research work, organization of co-operative studies, postgraduate training of research workers, and prosecution of research through grants to university professors. This promotion and encouragement of research formed the basis of the Council’s work from 1916 to 1924.

The creation of a central research institute, to carry on research in pure science in relation to standards of measurement, quality and composition of material, and in science applied to the industries of Canada, had been urged as early as 1918. A special committee of Parliament endorsed the proposal and in 1924 the Research Council Act was revised to include national research laboratories. Temporary quarters were secured and research on magnesian refractories for steel furnaces was carried out so successfully that a wartime industry, established during World War I, was re-established on a large scale. As a result of this achievement, the Government, in 1929-30, provided funds for new research facilities.

The National Research Building on Sussex Drive, Ottawa, was opened in 1932 and in 1939 construction was begun of an aerodynamics building on a 130-acre site on the Montreal Road, just east of the city. This site now comprises some 400 acres and houses most of the Council’s laboratories. A Prairie Regional Laboratory built on the campus of the University of Saskatchewan has been in operation since June 1948, and an Atlantic Regional Laboratory on the campus of Dalhousie University in Halifax, N.S., was opened in June 1952.

Under the terms of the Research Council Act, the National Research Council has charge of all matters affecting scientific and industrial research in Canada that may be assigned to it by the Committee of the Privy Council on Scientific and Industrial Research. In discharging these responsibilities, the Council may undertake, assist or promote research. Its duties include the utilization of Canada’s natural resources; the improvement of industrial processes and methods; the discovery of processes and methods likely to expand existing industries or to develop new ones; the utilization of industrial wastes; investigation and determination of physical standards, methods of measurement, and fundamental properties of matter; the standardization and certification of scientific and technical apparatus used by government and industry; the determination of standards of quality for materials used in public works and government supplies; investigation and standardization, at the request of industry, of industrial materials or products; and research intended to improve conditions in agriculture. The Council also has the duty of advising the Privy Council Committee on questions of scientific and technological methods affecting the expansion of Canadian industries or the utilization of the country’s natural resources.

* Prepared by R. A. Lay, Public Relations Office, National Research Council of Canada, Ottawa.

The Council's laboratories are organized in nine divisions and two regional laboratories, each with its own director. Five divisions are engaged in applied and fundamental studies in the natural sciences—applied biology, applied and pure chemistry, and applied and pure physics. Four others are devoted chiefly to engineering work—building research, mechanical engineering, radio and electrical engineering, and the National Aeronautical Establishment. The two regional laboratories carry out research related to the resources of the Prairie and Atlantic regions.

During World War II, the Council was responsible for all research carried out for Canada's three Armed Services. After the War, most of the military work was transferred to the Defence Research Board (see Chapter XXV). Another wartime development, the Atomic Energy Project, was constituted as a separate Crown company, Atomic Energy of Canada Limited, in 1952 (see pp. 333-338).

A Medical Research Council, fully responsible for the support of medical research but functioning under the general administration of the National Research Council, was established in November 1960 (see pp. 344-345).

The National Research Council consists of the President, two Vice-Presidents (Scientific), one Vice-President (Administration) and 17 other members, each of the latter group being appointed for a term of three years and chosen to represent industry, labour, and research in science and engineering. Many of the members are drawn from Canadian universities. The Council reports to Parliament through the Committee of the Privy Council on Scientific and Industrial Research.

The Council's current operating budget is about \$42,000,000. Approximately \$14,000,000 is required for foundation work—scholarships and research grants in science and engineering, plus the program of the Medical Research Council—and the remainder is used to operate the laboratories. Of the Council's 2,600 employees, some 730 are scientists and engineers.

Links with Industry.—The application of science to Canadian industry has always been one of the major concerns of the National Research Council. Since 1917, representatives of industry, government and the universities have co-operated, through NRC Associate Committees, in solving pressing industrial and economic problems. There is a constant flow of personnel and information between NRC laboratories and those of industry, and roughly 90 p.c. of the Council's own effort involves applied research intended for industrial use. Contract research on specific projects and a wide variety of testing and standardization work are undertaken. Inventions from NRC laboratories are carried through the patent stage, then made available for manufacture through Canadian Patents and Development Limited (see p. 106).

One of the Council's most important activities is its Technical Information Service. This consists of field engineers who visit manufacturing establishments, and a staff of trained researchers in Ottawa who use the technical literature available through the Council's library. All inquiries are handled but the Service is particularly interested in helping small firms with no research or information facilities. Free advice is given on materials and processing, equipment, plant design and packaging and on such topics as wage incentives and inventory control.

Direct financial assistance for research performed by Canadian industry will be undertaken by the Council during 1962-63. Under an Industrial Advisory Committee of leading Canadian industrialists, awards totalling \$1,000,000 will be made for long-term applied research and development. Aid will be given on a matching basis, with industry providing at least half the funds for any project. Companies of all sizes, covering a wide range of industrial activity, will be eligible for assistance and the companies will retain all rights arising from the work. By emphasizing studies expected to continue for a number of years, the Council hopes to strengthen existing research groups and encourage the establishment of new ones.

Foundation Aspects.—University research in science and engineering has been supported by the Council since its inception in 1916. This aid has been of considerable help to the universities in building up the excellent graduate schools that now exist in Canada. Awards to individuals make up most of the university support program. Included are research grants to university staff used for employing assistants and purchasing equipment and supplies, postgraduate scholarships, and postdoctorate fellowships. Approximately 975 research grants and 675 scholarships and fellowships were awarded in the year ended Mar. 31, 1962, at a cost of \$8,540,000.

General promotion and encouragement of university research—the remainder of the program—includes publication of six Canadian journals of research; contributions to scientific organizations and functions, Canadian membership in international scientific unions, and the administrative costs of the program. Expenditures for these activities in 1961-62 were \$860,000. An annual *Report on University Support* describes the program in detail.

In 1948 the Council instituted a program of postdoctorate fellowships, open to Canadians and to the nationals of all other countries. Originally these were tenable in the Council's own laboratories but the training and experience brought to the work by the young scientists proved so stimulating that the program has been gradually expanded. Fellowships are now tenable at Canadian universities (these are considered part of the university support program), in the laboratories of Atomic Energy of Canada Limited, and in the federal Departments of Agriculture, Forestry, Mines and Technical Surveys, and National Health and Welfare. More than 200 of these awards are being held at the present time (March 1962), mostly in chemistry, physics and biology.

Applied Biology.—This Division's program covers practical problems related to the national economy and fundamental studies in microbiology, biochemistry and biophysics as a basis for future application in agriculture, medicine and industry.

Apparatus and techniques for preparing, preserving and storing food make up a large part of the work, with particular attention in recent years to food freezing, cold storage and refrigerated transport. Specific studies in 1961-62 involved further tests on a process developed in the Division and now widely used in industry for the immersion freezing of poultry, quality loss in poultry meat during freezing and refrigerated storage, and an improved cooling system for frozen food trucks. The physical and chemical reactions preventing coagulation in evaporated milk during sterilization were also investigated. Microorganisms related to the preparation and preservation of food are studied, particularly those found in salted foods and in cheese, and those that grow at low temperatures. A national culture collection of about 3,000 yeasts, bacteria and fungi is maintained.

Considerable effort is devoted, also, to questions of animal and plant physiology. Studies of the mechanisms by which mammals, birds and man adapt to cold have provided important basic information on cell, muscle and metabolic activity, and also serve to explain practical problems such as the high death rate of newly born caribou. Fundamental plant processes such as translocation are investigated, and an exhaustive study is being carried out on strains of blue-green algae believed responsible for cattle deaths. Plant fibres such as cellulose—the skeletal material of plants—and the structure and function of plant cells are also examined. In collaboration with the pulp and paper industry, a new structure has been established for a material used for synthetic textile fibres.

Other studies involve fermentation mechanisms and enzymology, and the structures of proteins, carbohydrates and fats. One group, among its other projects, is engaged in long-term statistical studies of protein variability in wheat and wheat exports. The work has been expanded recently to include the effects of weather factors on protein content.

Applied Chemistry.—The Division of Applied Chemistry is concerned with supplying new scientific information for the development of Canada's natural resources and chemical

industries. Although formerly much of the work involved solving immediate specific problems, a larger part of the Division's effort is now being devoted to more basic studies. This avoids conflict with industrial laboratories and consultants and, in addition to providing fundamental information, often produces practical results. For instance, a long-term investigation on the contracting of fluids and solids—an operation vital to many chemical engineering procedures—has resulted in a successful commercial operation for drying grain. The same method can be extended easily to chemical reactions and to removing liquids from other materials.

Another long-term project of considerable industrial potential has concerned the factors responsible for the stability, or the destruction, of suspensions of solids in liquids and a method was devised for easily separating almost any suspended solid from the liquid surrounding it. This work was expanded recently to include the separation of dissolved solids. It has been shown that virtually all dissolved salts can be removed from water by filtration through an appropriate medium, and tests with other materials are in progress. Then, too, the study of chemical reactions at very high temperatures—carried on over the past several years—has resulted in the successful preparation of a stable polymer that could not be produced by conventional means.

The eleven sections of the Division are: analytical chemistry, applied catalysis, applied physical chemistry, chemical engineering, colloid chemistry, corrosion, high polymer chemistry, metallurgical chemistry, physical organic chemistry, rubber and textiles. Much of the work falls under the general headings of petroleum or corrosion chemistry, in that several sections work on topics related to one of these fields.

Pure Chemistry.—The Division of Pure Chemistry is organized around a nucleus of outstanding Canadian chemists who direct about 50 young postdoctorate fellows from all over the world. The work consists of long-term fundamental investigations in physical and organic chemistry.

The work in organic chemistry includes investigation of the structures of alkaloids, studies of the infrared spectra of steroids, and the synthesis of porphyrins and of compounds labelled with isotopes. Other sections deal with chemical kinetics and photochemistry, the study of the ionization potentials of free radicals by mass spectrometry, Raman and infrared vibrational spectroscopy, and the application of high resolution proton magnetic resonance techniques to the study of hydrogen bonding and other molecular interactions. Still others study certain aspects of surface chemistry such as the thermal properties of simple solids and imperfections in the bulk and the surface of alkali halide crystals, the heats of micellization by microcalorimetry, and the thermodynamics and stress-strain relationships associated with the absorption of fluids by active carbons. There is also a small group interested in the chemistry of fats and oils, and one engaged in fibre research.

Applied Physics.—The work in Applied Physics is divided between research projects likely to be of practical value and the continual development of the fundamental standards on which measurements generally are based. All the fundamental physical standards for Canada are housed and serviced in this Division, which now has primary standards equal to any in the world in the fields of mass, length, time, electricity, temperature and radiation. The sections of the Division are: acoustics, electricity and mechanics, heat and solid state physics, instrumental optics, interferometry, photogrammetric research, radiation optics, special problems, and X-rays and nuclear radiations. Industrial problems receive considerable attention, particularly calibration work and industrial noise abatement.

Several of the Division's developments are being produced commercially. Noise-excluding high fidelity earphones developed earlier are finding wide use in high noise areas, as hearing aids in schools for the deaf, and in the field of audiometry. A revolutionary analytical plotter for making maps from aerial photographs is in use by the United States Air Force, and a six-figure potentiometer being manufactured by a Canadian firm

is selling well. A precision direct reading thermometer bridge is in production and tentative arrangements have been made concerning a deepsea temperature-depth recorder. Other investigations include the thermal and electrical properties of ceramics (important in rocketry, nuclear energy and other fields), fundamentals of colour vision and colorimetry, testing and research for improving air-survey photography, and radio chemistry. Work continues on the measurement of line standards of length in terms of wavelengths of light, and on the use of atomic or molecular properties to define time intervals.

Pure Physics.—Investigations are under way on cosmic rays, low-temperature and solid-state physics, spectroscopy, X-ray diffraction, and theoretical physics. The work is on fundamental problems that do not have immediate application but advance the frontiers of knowledge and supply the basis for further progress in the applied fields. Energetic particles approaching the earth from space are being studied from three angles: continuous recordings of cosmic ray particles reaching ground level are compared with data from some twenty stations around the world; primary cosmic rays and their modulation by clouds of particles from the sun are studied by sounding rockets launched from Fort Churchill; the interaction of energetic particles with matter is investigated chiefly by means of photographic emulsions and Wilson cloud chambers.

The low-temperature and solid-state group studies the electrical, thermal and mechanical properties of metals and semi-conductors especially at very low temperatures. In the spectroscopy group, the structures of atoms and molecules are investigated by means of their microwave, visible and ultraviolet spectra. The theoretical physics group is concerned with theoretical problems in atomic, molecular and nuclear physics.

The X-ray diffraction laboratory undertakes fundamental work in molecular and crystal structure and identification problems for government laboratories. X-ray diffraction methods are extremely valuable for identification purposes as they are non-destructive and require only very small amounts of material. Two of the major projects concern narcotics and vanadium minerals.

Building Research.—Technical improvements in housing are the primary concern of the Division. The research program therefore covers all aspects of housing design, building materials and components, and studies in soil, snow and ice mechanics. Regional stations engaged in research and information are maintained in Halifax, Saskatoon, Vancouver and Norman Wells.

Examples of Division projects are the behaviour of cement aggregates and lightweight concretes; the materials and techniques of masonry construction and plastering; atmospheric corrosion of metals; paint and acoustics research; and examination of the performance of walls, windows, chimneys and domestic heating systems. Other studies involve the bearing strength of ice; the fundamental properties of various soil types, including permafrost and muskeg; frost action in soils; avalanche research; and the effects on buildings of ground vibrations caused by blasting or earthquakes. A unique fire research laboratory provides facilities for all types of fire resistance, fire prevention and fire fighting tests.

As the Division concentrates on building problems peculiar to Canada, much of the work concerns the performance of buildings and building materials in cold weather. In this connection, double-glazed windows and lightweight metal and glass curtain walls, used increasingly in modern buildings, have been examined. Special studies have been made to improve winter building techniques and there is a section devoted to problems of building in the Far North.

Many results of the Division's research are expressed in the National Building Code, an advisory document of building standards now used by municipalities accounting for half the total urban population of Canada. The Division also establishes the building regulations for all housing constructed under the National Housing Act.

Mechanical Engineering.—This Division works mainly in the fields of mechanics, hydrodynamics (hydraulic engineering and naval architecture) and thermodynamics. Extensive testing and specification work is undertaken for a variety of industries and for government departments. Much of the work consists of continuing projects related to land, sea and air transportation.

The mechanics activities include mathematical analysis and computation, the development of instruments and servomechanisms, and research on mechanical devices such as gears. One group, working in the field of bio-medical engineering in collaboration with surgeons, has devised a tool for end-to-end joining of blood vessels by a simple stapling operation.

In hydraulics, a number of investigations and models have been made for improving Canadian harbours. A new kind of breakwater has been developed which absorbs waves rather than reflecting them, and a breakwater utilizing this principle is under construction at Baie Comeau. A promising scheme has also been developed for reducing silt accumulation in harbours by wave energy. The ship laboratory has continued its studies on propeller, rudder and hull design and performance.

Railway work is devoted mainly to locomotives and the riding qualities and mechanical behaviour of freight cars. The improvement of braking systems and the use of cheaper fuels are being investigated. A long-term study is being made of the possible use of gas turbines in locomotives. The application of gas turbines to aircraft taking off and landing vertically is also being explored, together with the thermodynamic, aerodynamic and control problems that this type of aircraft involves. Considerable research is also being done on the behaviour of lubricants at high pressures, and that of gases at extremely high temperatures.

National Aeronautical Establishment.—The National Aeronautical Establishment is designed to meet the aeronautical research needs of military and civil aviation, to co-operate with the Canadian aircraft industry, and to carry out its own research program. Its studies therefore centre around problems of aerodynamics, aircraft structures and materials, and flight mechanics.

Aerodynamics research from low speeds up to a Mach number of about 12 is carried out in the Establishment's wind tunnels. Considerable attention is being given at present to low-speed problems of vertical and short take-off aircraft. Other studies include work on the aerodynamic characteristics of high-thrust propellers, on wings with submerged fans and on wings immersed in powerful slip-streams.

The research on structures and materials involves investigation of aircraft accidents, the fatigue and creep of aircraft structures, the determination of flight loads, aircraft design problems, and non-metallic materials. The latter study is part of a research for low density, high strength non-metallic materials resistant to high temperatures that could be used for structural purposes.

The flight mechanics program covers research on flight safety and flying stability and control; the development of a crash position indicator for locating crashed aircraft; atmospheric physics; anti-submarine magnetometry; and the avoidance of aircraft collisions.

A growing and highly diversified program of assistance to smaller industries is developing. Most of the work relates to product development, product improvement, or testing.

Radio and Electrical Engineering.—The work of this Division includes engineering problems of interest to Canadian industry and fundamental research in electrical science. The Division co-operates with the Armed Services and associated industries in designing, producing and evaluating new equipment.

Engineering problems include long-distance transmission of high-voltage direct current, radio remote-control of navigational aids, current and potential transformer calibration, high-frequency standards, and the development of electronic medical instruments and operating-room facilities. Electronic systems have been installed in the Toronto General Hospital for monitoring the condition of patients undergoing cardiovascular surgery and intensive therapy, and a system synchronizing X-ray photography with electrocardiogram has been developed for the Ottawa General Hospital. The Division maintains the best-equipped antenna laboratory in Canada and provides considerable assistance in the development and manufacture of antennas and radomes.

Among other projects are a microwave system for determining precisely the position of vessels engaged in hydrographic surveying, infrared scanning cameras to further Canadian research in cancer detection and treatment, and a creative tape recorder much in demand in electronic music studios. A highly mobile counter-mortar radar designed by the Division went into commercial production in 1961.

Fundamental studies are carried out on radio wave propagation, radio astronomy, upper atmosphere research, and electronic and solid-state research. A new radio observatory is being developed in Aigonquin Park, where a 33-foot diameter radio telescope is in operation. The Canadian rocket program at Churchill has introduced a new trend in upper atmosphere research, and a variety of instruments have been developed to study auroral displays and meteor showers.

Atlantic Regional Laboratory.—The Atlantic Regional Laboratory is engaged in practical and fundamental studies related to the resources and industries of the Atlantic Provinces. The work follows three general lines—chemistry and physiology of plants and microorganisms—especially marine organisms, animal nutrition, and chemical reactions at high temperatures. Specific studies are under way on the formation of slimes in the 'white' water of paper mills, the dietary effects of seaweed components, and the discoloration of New Brunswick potatoes during commercial cooking. At the request of the adhesives industry, a fundamental study is being carried out on the properties of collagen—a protein in cod skin used as the mother substance for photoengraving glue.

The long-term investigation of the basic chemistry involved in the fabrication of steel has progressed. Magnesite refractories capable of holding molten basic slags were constructed, and current theoretical studies are expected to produce improved methods for measuring and controlling temperature and oxygen concentration during steel-making.

Recent engineering work included the development of a semi-continuous dryer for use on seaweed and other commercially important plant material. This work was carried out in co-operation with industry, and provided a model for mobile dryers to be used throughout the Atlantic Provinces. A portable automatic methane detector for use in mines was also produced; operated off a miner's battery, the instrument continuously samples the air and automatically gives warning of dangerous concentrations of combustible gases.

Prairie Regional Laboratory.—One of the chief aims of the Prairie Regional Laboratory is to develop wider uses for crops grown on the prairies. This is achieved by determining potential uses of crops now in production and by encouraging the production of new crops to meet specific needs. Research is therefore carried out on the properties and reactions of plant components, and on the biological, chemical and engineering processes for turning them into other compounds. The development of oil-seed crops as alternatives to seed crops has received considerable attention.

For some time, the Laboratory has studied major plant constituents such as carbohydrates, protein, starch, lignin and fibres. An example of this work is the definition of the chemical structure of several polysaccharides found in cereal grains and important in

baking, milling and fermentation technology. Attention is also being given to minor plant constituents—such as phenols, flavonoids and terpenes, which are known to have fungicidal and germicidal properties. A laboratory has been set up to systematically study extractives from local plants and shrubs.

The engineering and process development group is engaged in research on continuous fermentation processes, pulping processes on wood and straw fibres, and the effects of glyceride structure of fats and oils on the quality of margarines and shortenings. Large-scale processing and pilot-plant-scale operations are carried out. There is also a group working in the field of mycology, which is concerned with the production of new chemicals, antibiotics, alkaloids and amino acids.

Administration.—Administration of the foregoing laboratories is organized as a Division of Administration and Awards, which exists only to serve the scientist. The five service units of this Division are: Awards and Committee Services (Awards, Committees, Publications, Research Journals); Administrative Services (General Services, Purchasing, Personnel); Information Services (Technical Information Service, Library, Public Relations Office, and Liaison Offices in Ottawa, Washington, D.C., and London, England); Plant Engineering Services; and Legal and Patent Services. The latter group works closely with Canadian Patents and Development Limited (see p. 106). An expert on economic research acts as special assistant to the Assistant Director, Information Services.

Section 2.—Research in the Atomic Field*

In the past, the atomic energy activities of many countries have been devoted mainly to uranium mining operations in support of military uses. However, a more durable phase is approaching, when a great proportion of the expanding annual construction of new electricity generating plants will employ nuclear energy. During the transition there is a temporary slowing down in the demand for Canadian uranium.

During the next ten years a large part of the relatively small uranium supply for nuclear power will be directed to the supporting inventory of nuclear fuel; beyond that the make-up to replace consumption is foreseen as rising to match and surpass the current world rate of production. By that time the atomic energy industry as a whole should be supported by the consumers of electric power but at present, in all countries and for a number of years to come, the young industry has the greater part of its costs furnished directly or indirectly through taxation. In an intermediate phase, capital advances made in anticipation of revenues from power consumers will be important.

Three Federal Government organizations have the basic responsibilities for atomic energy in Canada:—

- (1) The Atomic Energy Control Board, responsible for all regulatory matters concerning work in the nuclear field.
- (2) Eldorado Mining and Refining Limited, with a double function as a producer of uranium and as the Government's agent for the purchase of uranium from private mining companies.
- (3) Atomic Energy of Canada Limited, concerned with nuclear research and development, the design and construction of reactors for nuclear power, and the production of radioactive isotopes and associated equipment, such as cobalt-60 Beam Therapy units for the treatment of cancer.

Now that the mine at Great Bear Lake, N.W.T., is closed, three principal uranium-producing areas in Canada remain: the east end of Lake Athabasca in Saskatchewan,

* Prepared by Dr. W. B. Lewis, Vice-President, Research and Development, Atomic Energy of Canada Limited, Chalk River, Ont.

and Elliot Lake and Bancroft in Ontario. All four areas resulted from reports made by the Geological Survey. For the greater part, the mining operations themselves are conducted by private companies supported by export contracts that would have terminated in 1962 but have been revised so that some will be stretched out, without increase in total supply, to 1966. The revision of the contracts has also closed down the less economical mines of private companies. Only Eldorado and one other of the original six companies in Beaverlodge are still in operation, four of the original eleven at Elliot Lake, and two of the three at Bancroft. A refinery run by Eldorado is located at Port Hope on the northern shore of Lake Ontario. The Research and Development Division of Eldorado, together with the Mines Branch of the Department of Mines and Technical Surveys, also makes important contributions to the solution of recovery problems, a noteworthy example being the development of the sodium carbonate leaching process for the Beaverlodge uranium ore-processing plant, which avoided the shipping of large amounts of acid to that remote area.

Atomic Energy of Canada Limited (AECL) has an eleven-man Board of Directors, including individuals from private industry, public and private power companies and the universities. The Company's major plant is near Chalk River, Ont., and its Head Office and Commercial Products Division in Ottawa. During 1960 and 1961, contracts were awarded for the construction of AECL's new research centre at Whiteshell, Man., and site development is under way. Early in 1958, a Nuclear Power Plant Division was established in Toronto, and took over responsibility of directing the NPD-2 project. This project, a nuclear power demonstration plant to produce 20,000 kw. of electricity, is now being commissioned at Rolphton near the Chalk River establishment; its design and construction were carried out in collaboration with the Canadian General Electric Company Limited and The Hydro Electric Power Commission of Ontario. The Nuclear Power Plant Division of AECL, with the assistance of Ontario Hydro, is also designing and constructing a full-scale nuclear power plant, known as CANDU, which will supply 200,000 kw. of electricity to the Ontario Hydro system. This plant is being built at Douglas Point near Kincardine on Lake Huron. By agreement, Ontario Hydro will purchase the plant when it is in satisfactory operation. An Advisory Committee on Atomic Power Development keeps all other utilities fully informed of the progress being made. This Committee, which was set up by the Government in 1954, meets periodically at Chalk River to assess the economic prospects of nuclear power throughout the country.

Because of the great pace of technological development in nuclear power throughout the world, AECL devotes a major effort to collaboration with many organizations. These include industrial firms and the scientific and engineering departments of universities in Canada and, through foreign government agencies and several international organizations, many technical groups in other countries. For example, the Canadian General Electric Company has been contracted to carry out the design and development of an organic-cooled experimental reactor, and it seems likely that this will be the first reactor to be built at the Whiteshell Nuclear Research Establishment. AMF Atomics Canada Limited and CGE are AECL's chief contractors for fuel element fabrication, and other work related to Canada's nuclear power program is carried out in collaboration with Orenda Engines Limited, Canadian Westinghouse Company Limited, Montreal Locomotive Works Limited and Montreal Engineering Company Limited. In general, AECL's policy is to stimulate the interest of private industry in the development of nuclear power so that these firms can take over construction of power plants when the time arrives, leaving AECL free for fundamental studies and developing new reactor concepts. AECL also lends general support to the nuclear and related studies of Canadian universities and lets contracts to the universities on specific problems

In the international field, close ties are kept with the United States Atomic Energy Commission and the United Kingdom Atomic Energy Authority, both of which have representatives permanently at Chalk River. There is an agreement with the United States for co-operative work on heavy-water-moderated reactors; it provides for the free exchange of all technical data in this field and a commitment by the USAEC to spend \$5,000,000 in the United States on research and development related to reactors of Canadian design. More or less formal collaboration has also been established with the International Atomic Energy Agency, the Organization for Economic Co-operation and Development, and Euratom, as well as with India, France, Sweden, West Germany, Switzerland, Japan and Pakistan. In India, construction and running-in of the Canada-India reactor was completed during 1960, and the reactor was formally inaugurated in January 1961.

Chalk River Project.—The Chalk River Project is a research and development establishment. Basic and applied research is carried on by about 200 professional scientists and engineers supported by 300 technicians devoted to research in nuclear physics, nuclear chemistry, radiobiology, reactor physics, radiation chemistry, environmental radioactivity, physics of solids and liquids, and other subjects, using as their primary facilities the two major reactors, NRX and NRU, the auxiliary reactors, ZEEP, PTR and ZED-2, the tandem Van de Graaff accelerator and analytical facilities such as a precision beta-ray spectrometer, mass spectrometers, electron microscopes, multi-channel pulse analyzers, automatic recorders, analogue and digital electronic computers.

Basic research is carried on in many fields, especially that of the structure of atomic nuclei, and of the interactions of neutrons, not only with individual nuclei but also with liquids and crystalline solids, particularly those involving energy transfer. For nuclear structure studies, the tandem Van de Graaff has made pioneer work possible by providing multiply-charged ions of precisely known energy and direction. It has proved possible to produce nuclei in specific energy states by different routes and to identify and analyse the states, thereby deducing the spin and other characteristics and discovering, for example, a correlated series of rotational states in the nucleus neon-20. Not only is this important to a basic understanding of nuclear structure, but it also finds application in unravelling the complex of nuclear reactions responsible for the genesis of nuclei in the interior of stars.

Studies of neutron interactions with matter are made possible by the intense beams of neutrons available from the NRU reactor. By monitoring the neutrons in cosmic radiation it has been possible to find correlations with the occurrence of solar flares and contribute to the recent advances of knowledge of phenomena in interplanetary space. Isotope techniques have brought about revisions in the basic theory of chemical reactions induced by radiation. This basic research may find a useful early application in the technology of using an organic liquid as coolant in nuclear power reactors.

The research facilities of the NRX and NRU reactors have continued to attract individual scientists as well as teams from other countries. A team of Brookhaven (U.S.A.) and AECL scientists is using a neutron beam with a high-speed chopper and long flight path for nuclear interaction studies. Another team with scientists from Harwell (Br.) and other countries is using another system of choppers for studying details of the slowing-down of neutrons by moderators. Both in NRX and NRU the exceptional facilities for irradiations in high temperature water, steam and organic liquids have brought teams from Britain and the United States to conduct tests important for the design of future power reactors.

CANADIAN NUCLEAR REACTORS IN OPERATION, UNDER CONSTRUCTION OR APPROVED FOR CONSTRUCTION

Name	Location	Date of Start-up	Power	Fuel	Moderator	Coolant	Use
Zero Energy Experimental Pile (ZEEP).....	Chalk River, Ont.	1945	100 w.	Natural uranium metal or oxide	Heavy water	—	Lattice experiments
National Research Experimental (NRX)....	Chalk River, Ont.	1947	42,000 kw.	Natural uranium metal	Heavy water	Ordinary water	Research and isotope production
National Research Universal (NRU).....	Chalk River, Ont.	1957	200,000 kw.	Natural uranium metal	Heavy water	Heavy water	Research and plutonium and isotope production
Pool Test Reactor (PTR)	Chalk River, Ont.	1957	100 w.	Enriched uranium alloy	Ordinary water	Ordinary water	Reactivity and absorption measurements
Toronto University Sub-critical Reactor.....	Toronto, Ont.	1958	—	Natural uranium metal	Heavy water	—	Research and teaching
McMaster Nuclear Reactor (MNR)	Hamilton, Ont.	1959	1,000 kw.	Enriched uranium metal	Ordinary water	Ordinary water	Research
ZED-2.....	Chalk River, Ont.	1960	100 w.	Natural uranium metal or oxide	Heavy water	—	Lattice experiments
Canada-India Reactor (CIR).....	Bombay, India	1950	40,000 kw.	Natural uranium metal	Heavy water	Ordinary water	Research and isotope production
Nuclear Power Demonstration (NPD-2).....	Rapla, Ont.	1962	20,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power demonstration
Canadian Deuterium-Uranium (CANDU).....	Douglas Point, Ont.	1964-65	200,000 kw. (electricity)	Natural uranium oxide	Heavy water	Heavy water	Power

Nuclear Power Prospect.—The generation of electricity by nuclear power on a competitive economic basis is expected to be established by the type of reactor now being designed by the Nuclear Power Plant Division of AECL at Toronto. This promise rests on the attainment of very-low-cost fuelling by an extremely simple system tested over many years by experiments in the NRX reactor. The fuel will be uranium dioxide specially prepared from natural uranium entirely in Canada. A wide range of tests in hot channels in the NRX reactor at heat ratings and energy yields in excess of those required has established that this oxide fuel is incomparably more dependable than the uranium metal fuel for which the NRX and NRU reactors were designed. No provision for reprocessing the irradiated fuel is involved, for, by careful attention in the reactor design to minimizing any waste of neutrons, an energy yield of over 9,000 thermal megawatt-days is expected from a ton of uranium before it is discarded. This results in a prospective fuelling cost of about 1 mill (0.1 cent) per electric kilowatt-hour, to be compared with about 3 mills from coal at \$8 per short ton.

Canada has access to such an abundance of coal, oil and natural gas that the competitive cost level for electric power is lower than in many other countries. Nuclear power plants of the types now under construction in Britain and the United States have been assessed as unable to reach a low enough cost level, at least until several successive plants have been built and operated to discover where economies are possible. Plants of the CANDU type do not promise to be significantly cheaper in initial outlay, but the fuelling cost can be so much less that meeting the competitive target is a very real prospect.

The low fuelling cost derives as much from the details of the design proposed as from the general type of reactor chosen. Some of the important features seem worthy of mention. The full-scale plant will generate 220 megawatts with a steam-cycle efficiency of 33.3 p.c., so the reactor has to supply 660 thermal megawatts to the steam-raising plant. The reactor is essentially a tank of heavy water, 20 ft. in diameter and 16.5 ft. long, lying horizontally. It is penetrated by 306 fuel channels parallel to the axis on a 9-inch-square lattice. Each channel is a zirconium-alloy pressure tube of 3.25 in. inside diameter and about 0.16 in. thick. The fuel consists of bundles of 19 rods, 0.6 in. in diameter and 19.5 in. long, made of dense uranium dioxide in thin zirconium-alloy tubes. Heat is taken from the fuel directly by heavy water that passes at 560°F. to the steam boiler, where normal water is raised to saturated steam at 483°F. and 560 psi. The heat developed in the heavy water moderator that is in the tank outside the fuel channels is not directly used and amounts to about 35 thermal megawatts. The over-all net plant efficiency is then 29.1 p.c. These details show that the design represents a very considerable advance over that originally conceived in 1956, and the improvement bears promise that continued progress will lead to costs well below the economic target. As examples of the advance, it may be noted that for the same electric power output, the reactor power has been brought down from 790 to 700 megawatts and the length of fuel rod from 86 to 30 kilometres. The prospective fuelling cost has dropped from 1.85 mill/kwh. to 1.0 mill/kwh. On the other hand, no over-all reduction has been achieved in the capital cost estimates which remain in the range \$300 to \$400 per electrical kilowatt for the whole plant. No reduction is expected until manufacturing experience has been gained that can be used in future construction, but thereafter appreciable reductions should be possible. A detailed breakdown of costs for CANDU was published during 1960. The conclusions are summarized in the following statement.

POWER-COST ESTIMATES FOR CANDU
(mills/kwh.)

Item	First Unit 800 MW(e)	Twin Unit 400 MW(e)	2nd Unit Increment 800 MW(e)
Fixed charges.....	3.9 to 4.9	3.3 to 4.4	2.7 to 3.8
Fuelling.....	1.1 " 1.1	1.1 " 1.1	1.1 " 1.1
Operating.....	1.0 " 1.0	0.7 " 0.7	0.4 " 0.4
TOTALS.....	6.0 to 7.0	5.1 to 6.2	4.2 to 5.3

These figures will serve to explain why the first plants seem to find economic application in Canada only in the Ontario system, where annual charges on capital are low and coal has to be imported and costs about \$8 a short ton. Moreover, the demand for electricity in Ontario is growing at more than 200 megawatts capacity per year. To build reactors for lower powers saves little in the cost, so the cost per kilowatt rises and becomes uneconomical. When confidence has been gained from the early plants, higher powers seem likely to be attempted and 400 electrical megawatts from one reactor may be attained.

Operating experience with the NRX and NRU reactors at Chalk River and with the many other types throughout the world has served to emphasize the great difficulty and costliness of making even minor operating repairs in the presence of the extremely high levels of radiation that are encountered around reactors. Directly and indirectly, this is responsible for the current hesitation to construct a number of large plants that for economic power cost no less than \$40,000,000 or \$50,000,000 each. With every new design it is necessary to acquire operating experience before the reliability and availability can be effectively estimated. Experience with defective fuel has been deliberately sought at Chalk River, because this is one of the difficulties most likely to be encountered. Appropriate techniques of locating the defective element, removing it and cleaning up the released radioactive fission products have been established and practised; at the same time fuel designs and ratings which lead to least difficulty in these operations have been studied. Experience of mechanical failures of control rods has lent weight to reactor designs such as NPD-2 where control rods are not needed. Temperature changes are likely to provoke mechanical failures, so design is aimed at keeping the reactor at power for all essential operations including refuelling and complete maintenance testing and readjustment of instruments and working parts of the control system.

These considerations lead to a vicious circle, for the quickest way to achieve reliability is to construct and operate a number of plants following these design principles, but until such plants have operated satisfactorily utilities are unwilling to take the risk of lost time for repairs. The same principles hold throughout the world. For example, Britain is following a program based on the Calder Hall type of reactor developed, not by a utility company, but by the government to serve a military requirement. Italy is purchasing three power reactors—one from Britain, one from the United States based on the Shippingport and Yankee reactors, and one from the United States closely following the Commonwealth Edison Dresden plant. Canada is pioneering another pattern financed by the government, and working at Chalk River to develop technical knowledge and experience that will give confidence to the utilities. The performance of the demonstration reactor (NPD) will tell whether the sought-for reliability has been achieved so that utilities can finance plants unaided.

Because the CANDU type of reactor is suitable only in large units, AECL is undertaking to study another type of reactor proposed by the Canadian General Electric Company that should have a lower capital cost. This is also a heavy-water-moderated reactor, but the heat is taken from the fuel by an organic liquid specially chosen for a high boiling point and minimum decomposition by radiation. This is a hybrid design that should utilize the Chalk River experience with heavy water and uranium oxide fuel and the experience of the organic liquid developed in the United States as a coolant and moderator for a nuclear reactor. Development of metals that are suitable for use in such a reactor is required and may take a few years to effect.

In the longer term, it is expected that heavy-water-moderated reactors would have two-zone cores. In one zone the heat required to evaporate water in the steam cycle would be supplied, and in the second zone the steam would be superheated to achieve a higher efficiency of conversion of heat to electricity. The heat for evaporation may be taken by an organic liquid or directly by evaporating wet steam, or possibly boiling water at high pressure. New materials are required also for this design and their development may be lengthy.

Section 3.—Space Research in Canada*

Canadian scientific activities in space are limited to the application of new techniques to assist research in fields in which activity has been carried on for years. Canadian capabilities cannot begin to compete with space science activities in countries like the United States and the Union of Soviet Socialist Republics but, on the other hand, there are important things that can be done better in Canada than elsewhere. This is because of the tilt of the earth's magnetic axis toward Northern Canada and the effect of the earth's magnetic field on the interaction of radiation and particles from the sun with the earth's upper atmosphere.

The sun, whose radiations make life on earth possible, discharges streams of particles of matter, sometimes with great energy. These streams of particles are very irregular and occur in bursts associated with disturbances on the surface of the sun. The streams of particles, ultraviolet light and X radiation from the sun cause the outer regions of the earth's atmosphere to be ionized and therefore electrically conducting, forming the well-known conducting layers in the ionosphere. The streams of particles are mostly protons and electrons; their motion is affected by the earth's magnetic field and if intense enough they, in turn, distort the magnetic field.

The study of magnetic variations and magnetic storms is hundreds of years old. Their relation to aurora has been known for a hundred years or more and during the past few decades the electrical nature of the upper atmosphere is gradually becoming understood.

The understanding of the electrical conductivity of the upper atmosphere is of practical importance as well as of academic interest because a wide range of radio communications depend on the reflection of radio waves from the ionosphere. Without the ionosphere, the range of ordinary radio broadcasting and shortwave communication would be limited to a fraction of that used every day. Occasional radio blackouts follow bursts of unusually intense ionizing radiation from the sun. The awe-inspiring phenomenon of the aurora is associated with blackout of some types of radio communication and therefore, for practical reasons, merits study; there is also a natural desire to understand what causes this phenomenon.

The most interesting and important phases of ionosphere and auroral activity occur at heights of from 30 to 100 miles in the atmosphere and the most interesting and important geographic regions for studying the ionosphere and aurora are in what is known as the aurora belt, a diffuse circle about 20 degrees of co-latitude away from the geomagnetic poles. Churchill in northern Manitoba is in the latitude of maximum auroral activity. Because of the tilt of the magnetic axis of the earth in the western hemisphere, the magnetic pole is in Northern Canada and the only place in the world where accessible land stations extend into and across the auroral belt is in Northern Canada.

Canadian scientists have for many years been very active in studying auroral and ionosphere physics. A number of university research groups led by the Department of Physics in the University of Saskatchewan are well known for such studies. The Defence Research Board's Telecommunications Establishment and the National Research Council have conducted research in this field since World War II. In fact, because of Canada's geographic position, it might be said that ionosphere and aurora research is a Canadian scientific birthright with which goes a considerable responsibility to see that the worldwide need for scientific information in this field is satisfied.

Until the present space age, measurements of the upper atmosphere could be taken only by indirect means such as the reflection of radio waves from the ionosphere, spectroscopy of the aurora and night sky and the absorption of cosmic radio noise. Now, the new rocket technique makes it possible to take direct measurements in the interesting region from 30 miles up and it is natural that Canadian scientists should take advantage of this

* Prepared (February 1962) by Dr. D. C. Rose of the National Research Council, Ottawa.

technique and use rockets to carry their instruments into the ionosphere and aurora. The rockets involved in doing so are not too large or difficult for Canadian manufacture. A 17-inch rocket now being made in Canada will carry about 150 lb. of pay load to a height of about 150 miles and a series of rockets known as *Black Brant I, II, III* and *IV* is being developed by Canadian industry jointly with government branches.

The United States led the way in this field and about the time the International Geophysical Year (1957-58) was being planned rockets of the above type, developed primarily with military objectives, became common for scientific purposes. Several types are now available in many countries, besides those being developed in Canada, which have no military significance but will be used solely for scientific purposes. In preparing for the International Geophysical Year the United States established a rocket-launching range at Churchill. This was used jointly after the IGY until fire put it out of action in February 1961.

The first practical applications of space technology in the fields of meteorology and communications are almost within reach. Meteorological satellites that can televise cloud formation and ice formation are being proven to be of immense value in advancing this science. Though meteorology satellites have as yet been launched only by the United States, the project is essentially an international one and co-operative receiving stations in various parts of the world are important to their success. It has also been shown recently that synoptic measurements all over the world are desirable up to heights of about 50 miles and these can be made with relatively small rockets. In world-wide communications the use of satellites will expand available channels by a large factor. The Canadian Department of Transport, which holds the nation's responsibility in both meteorology and communications matters, is undertaking studies which will permit Canadian use of the techniques as they emerge from research to serviceable application.

One of the largest current research projects in Canada is the construction of the *Topside Sounder* satellite being designed and built in the Defence Research Board laboratories with considerable assistance from industry. The satellite will be launched in the United States in late 1962 and will circle the earth in an almost north-south orbit. It will contain a number of experimental packages mainly to study the upper part of the ionosphere which can be examined at present in no other way. Secondary experiments carried in the satellite are comprehensive cosmic ray measuring instruments being built by the National Research Council and radio receivers for listening to cosmic radio waves. The *Topside Sounder* got its name from the fact that it will probe the upper side of the ionosphere from above (about 600 miles up) by the same sounding technique that is used on the ground to probe the under side, that is, by studying the reflection of radio waves of varying frequency. For this and other United States satellites, special satellite data recovery stations will be established in Northern Canada.

Section 4.—Other Scientific and Industrial Research Facilities

Aside from the research facilities and activities covered in Sections 1, 2 and 3, Canadian research is carried on by various federal agencies, provincial organizations, universities and industries. Several provinces in Canada have established provincial Research Councils to stimulate and support research on problems having special provincial significance. The universities, of course, form an extremely important part of the Canadian pattern of research. Much of their work is along fundamental lines but practical problems are not neglected, especially those of regional interest.

All three types of institutions—federal, provincial and university organizations—have an interest in problems of industrial significance; this is part of the current Canadian pattern of research. Though many Canadian industries now possess research facilities—some of them quite extensive—the major part of industrial research to date has been done under government auspices.

Thus the unique problems of the country, particularly its large area coupled with a small population, have led to a typically Canadian organization of research, of which a very strong associate committee system is perhaps the most distinctive feature.

Subsection 1.—Federal Organizations

Although research by industrial firms has been slow to develop in Canada, government research has expanded rapidly, at first because of the need for speeding up the production of raw materials, which were for many years the basis of Canada's export trade, and secondly because of the more recent interest in the processing of these raw materials and the necessity of meeting the needs of national defence. Federal agencies involved in research include the Departments of Agriculture, Forestry, Fisheries, Mines and Technical Surveys, National Defence, National Health and Welfare, and Northern Affairs and National Resources as well as the National Research Council and other Crown corporations such as Atomic Energy of Canada Limited. A system of committees, with nation-wide representation, eliminates unnecessary duplication of work from these national research organizations.

The scientific work of the Department of Agriculture is described in Chapter IX of this volume, the specialized work in scientific forest research in Chapter X, scientific services concerned with Canada's mineral resources conducted by the Department of Mines and Technical Surveys in Chapter XI, investigational work of the Department of Fisheries in Chapter XIII, research of the Canadian Wildlife Service of the Department of Northern Affairs and National Resources in Chapter I, the work of the Defence Research Board in Chapter XXV, the work of the National Research Council at pp. 326-333 and atomic research at pp. 333-338. The activities of the other federal agencies engaged in research are described briefly in the following paragraphs.

Department of National Health and Welfare.*—The federal Department of National Health and Welfare supports intramural and extramural research programs which aim to preserve and improve the health of Canadians. Within the Department, research is done in the laboratories or clinic services of the Health Services Branch (particularly its Laboratory of Hygiene and Divisions of Occupational Health, Radiation Protection, Nutrition, and Epidemiology), of the Food and Drug Directorate, and of the Indian and Northern Health Services Directorate. In the Administration Branch, the Research and Statistics Division carries out special studies, including surveys, in social and medical economics. The extramural program consists of grants in aid of medical research sponsored by the provinces and conducted in universities, hospitals and other institutions from funds provided under the National Health Grant Program. The Public Health Research Grant makes available about \$1,700,000 annually to assist in stimulating and developing public health research; in addition, other grants in the areas of Mental Health, Child and Maternal Health, Cancer Control, General Public Health,*Tuberculosis Control, as well as Medical Rehabilitation and Crippled Children amount to an approximate \$2,000,000. To co-ordinate and advance the extramural program, senior officials of the Department confer with advisory bodies such as its Research Advisory Committee, representatives from the provinces, from other federal agencies (the Medical Research Council, the Defence Research Board and the Department of Veterans Affairs) and from voluntary groups such as the National Cancer Institute.

Grain Research Laboratory.—Rapid development of grain production in Western Canada led to the passing, in 1912, of the Canada Grain Act. This Act is administered by the Board of Grain Commissioners, which reports to Parliament through the Minister

* Prepared by Dr. L. B. Pett, Principal Medical Officer, Research Development, Department of National Health and Welfare, Ottawa.

of Agriculture. The Board is responsible for control of the weighing, grading and warehousing of Canadian grain. Soon after its establishment, the Board encountered problems that required scientific study and a Grain Research Laboratory was established at Winnipeg, Man., in 1913.

The Grain Research Laboratory, with a staff of 60, is the main centre of research on the chemistry of Canadian grains. It is well staffed and equipped to provide the service required to help maintain and expand domestic and foreign markets for all types of grain. The Laboratory collects and tests samples of various crops to obtain information on the current quality of all grains shipped during the crop year and prepares, annually, certain information required by the Board for administering the Canada Grain Act. Fundamental research is also undertaken; the program is directed toward better understanding of what constitutes quality in cereal grains and toward improvement in the methods of assessing quality.

Subsection 2.—Provincial Organizations

The fact that only a few provincial research organizations exist does not indicate lack of interest in research by the provinces. Most provincial governments have university laboratories to consult, particularly about local industrial and agricultural problems, and many individual departments have facilities for research in their particular fields of endeavour or assist research through the provision of financial aid to students working in those and other scientific fields. Agriculture is particularly well covered because of its importance as an export industry but the provinces are also intensely interested in their other natural resources. Their efforts in the fields of agriculture, forestry, mining and fisheries are outlined in the Chapters dealing with those subjects (see Index).

Nova Scotia Research Foundation.—This body was created by the Government of Nova Scotia in 1946 to give its people additional scientific and technical assistance in finding new and better ways to utilize the resources of the forest, the sea, the farm, the mine and the process industries. To this end it seeks to correlate and further scientific work on local problems and available resources. It assists universities, colleges, research groups, industries, provincial and federal departments and individuals by loans of equipment, grants, scholarships, laboratory and summer assistants, library, cartographic, photogrammetric and translation services, and technical information. It has supported or collaborated in work on breeding new varieties of plants and root nodule bacteria; on antibiotics, poultry, blueberry culture, coal-burning equipment, the constitution and gasification of coal, the non-destructive testing of mine equipment, the utilization of anhydrite, diatomite, fish waste, gypsum, seaweed, slag, slab wood and fertilizing materials. It has conducted geophysical, geological, air pollution, and seaweed surveys as well as forest aphid, forest ecology and genetic studies and has assisted studies on the nutrient cycles of lakes, on X-ray crystallography, and on pressures in underground strata. Its Geophysical Division is equipped to undertake all types of magnetometric, gravimetric, resistivity, seismic and electromagnetic explorations. The Technical Services Division provides free technical information to industries in the province and offers them research and development services and facilities in the fields of physics, chemistry and engineering, including operational engineering.

Saskatchewan Research Council.—The Saskatchewan Research Council carries out research in the physical sciences, both pure and applied, with the aim of improving the provincial economy. The Council is therefore particularly concerned with the commercial exploitation of provincial resources and the scientific aspects of business. Current emphasis is on water and mineral resources, fields of agriculture not covered by other organizations, and technical assistance to industry. Besides being actively engaged in its own projects, the Council, by the granting of funds, supports further research at the University of Saskatchewan. Its buildings, occupied by a permanent staff of 40 persons and additional temporary staff, are situated on the university campus.

Research Council of Alberta.—The Province of Alberta set up a Scientific and Industrial Research Council in 1921, the promotion of mineral development within the province being the chief purpose leading to its establishment. The Council operates under an Act somewhat similar to that which set up the National Research Council and is financed by provincial government appropriations. The present program is directed to the application of basic and applied science toward the development of the natural resources of the province. Investigations in the Council laboratories and pilot plant are organized into two branches—the Earth Sciences Branch which includes all work on groundwater geology, geological surveys and research, and soils, and the Fuels Branch which includes work on coal, petroleum, natural gas, and gasoline and oil testing. There are, in addition, project groups dealing with industrial engineering services, highway research, a co-operative program on cloud physics with reference to the hail problem, and a number of special projects.

The operations of the organization are controlled by a Council of ten individuals representative of the government, the university and industry. The various research projects are under the immediate supervision of advisory committees and the Technical Advisory Committee of the Council; the latter is composed of senior officers of the Council and the government, with certain committee chairmen and university representatives.

The Council laboratories are located beside the University of Alberta campus.

British Columbia Research Council.—The British Columbia Research Council, under the sponsorship of the provincial Department of Industrial Development, Trade, and Commerce, provides a scientific and engineering staff with laboratories on the campus of the University of British Columbia. The objective is to enable even the smallest firms to improve their competitive position in Canadian and world markets by the use of the most up-to-date scientific and technical knowledge. The Council provides three classes of service: a free information service in collaboration with the National Research Council; assistance to specific firms at cost where information cannot be supplied from existing knowledge; and, at the Council's expense, research on problems of general value to the industrial development of the province.

The Ontario Research Foundation.—The Ontario Research Foundation, established in 1928, is an independent research organization financed initially by an endowment fund composed of subscriptions from manufacturers, corporations and private individuals, and a grant from the provincial government. Most of its current income is derived from contract research undertaken for industry, although income is also obtained from the various government departments for research and other work undertaken on a contract basis. The Foundation is concerned primarily with the development of industry and the development of Ontario's natural resources through the application of scientific research. However, Foundation activities are not confined to the province; research contracts are routinely handled for any organization, without reference to location. Being primarily an industrial research institution, the Foundation's main areas of scientific endeavour are chemistry, physics, metallurgy, biochemistry, textiles and engineering. Other Foundation departments, such as parasitology and physiography, are engaged particularly in studies related to Ontario's natural resources and field engineering and technical information is provided free to industry, sponsored by the Ontario Department of Commerce and Development and the National Research Council. It also administers a grant from the provincial government to support postgraduate scholarships and scientific research in the universities of Ontario.

The Hydro-Electric Power Commission of Ontario.—The Research Division of Ontario Hydro, with a staff of 300, provides services for all technical activities of the utility, in engineering design, construction work, power utilization, and system operation and maintenance. In addition to solving specific problems, the testing, investigation and research work leads to important technical advances, including the development of new

and better equipment. Ontario Hydro is thus enabled both to improve the performance of the power system and to effect economies. Members of the staff maintain close contact with research organizations and other power utilities, and participate in the committee work of major technical societies and of standards associations.

Electrical investigations explore methods of generating, transmitting, distributing and utilizing power, and seek improvement in equipment for these purposes. Some of the main fields of study are transmission at extra-high voltage; electrical insulation; system operation and control, and system protection against lightning; communications and telemetering; illumination; and power metering. Attention is given to the performance and efficiency of power equipment, to improved measuring techniques, and to means of minimizing the hazards of electric shock.

Structural and mechanical studies include the following: soil mechanics as related to foundations, roads, and earth dams and dykes; the physical properties of structural components and of numerous items such as conductor joints and line hardware; the mechanical performance and safety features of equipment and various types of machines; metals and metallurgy; welding materials, techniques and applications; atmospheric and underground corrosion of metals; stresses in materials and structures; noise and vibration conditions; and a variety of problems associated with the design, construction and maintenance of concrete structures, the application of masonry materials, and the production, placement and quality control of all concrete used.

In addition to chemical analyses and tests performed on a wide range of materials and products purchased, chemical research work is conducted with regard to such subjects as wood preservation, plastics applications, protective coatings, both vegetation and insect pest control, lubrication, liquid and gaseous electrical insulants, thermal insulation, air pollution, corrosion prevention and water treatment. Other studies contributory and supplementary to the main branches of work are carried on in the fields of physics, biology, petrology and mathematics. Operations research studies are used in determining optimum policies and procedures in vehicle replacement, inventory control, reserve transformer capacity, economic power dispatch, and schedules for pumped-storage operation.

In the summer of 1961, the Commission's research and testing activities were transferred to a new building, known as the Ontario Hydro W. P. Dobson Research Laboratory, which was designed and constructed for these purposes and provides considerably more space and better facilities than the building formerly occupied. A separate high-voltage test laboratory adjacent to the new building was completed in early 1962.

Subsection 3.—Medical Research*

Support for research in the medical sciences is provided by the federal and provincial governments, by private foundations, by voluntary agencies and by universities and hospitals. These sources assist in establishing research fellowships for training, in providing salaries to established investigators or in the awarding of grants in aid of research in the various disciplines of the medical sciences.

The Departments of National Health and Welfare and of National Defence maintain well-equipped laboratories in which research is carried out by highly qualified personnel. The Department of Veterans Affairs also encourages its staff to carry out investigations in its own hospitals, mainly in the fields of chronic illness, such as arthritis, atherosclerosis, and metabolic, nutritional, neurological and mental disorders.

A great variety of medical problems are studied in medical school laboratories, hospitals and other medical institutes. In this field, funds from the federal treasury are provided through the Medical Research Council, the Department of National Health and Welfare and the Defence Research Board. The Medical Research Council has an interest in the broad field of the medical sciences; it has recently established its policies with respect to

* Prepared by Dr. J. Auer, Secretary, Medical Research Council, Ottawa.

the support of scientific personnel and with respect to grants in aid of research. The former category involves awards to Medical Research Fellows who are in training, as well as to Medical Research Associates who are independent scientists. The grants in aid of research involve assistance covering the whole or part of the costs of investigations in the basic medical sciences, such as anatomy, physiology, pharmacology, biochemistry, bacteriology and pathology, as well as of investigations in the clinical sciences, including experimental medicine and surgery. The Department of National Health and Welfare provides funds for research available on the recommendation of provincial departments of health in the following fields: public health research, tuberculosis control, child and maternal health and general public health services. It also gives assistance to the Canadian Arthritis and Rheumatism Society (which obtains other support by public subscription) and to the Ontario Heart Foundation (which derives its other resources from the Ontario Government and through public fund-raising campaigns). In addition, the Department makes available funds for cancer research of benefit to the National Cancer Institute.

The Defence Research Board awards grants for research related to problems of importance for defence such as shock, preservation of blood, use of blood substitutes, effects of low temperature, etc.

Medical schools and hospitals also receive funds for research from provincial branches of the Canadian Cancer Society and from such government foundations as the Ontario Cancer Treatment and Research Foundation, and the Alcoholism and Drug Addiction Research Foundation. Fraternal societies and clubs such as the Rotary Club also show interest in the support of research.

Private foundations like the J. P. Bickell Foundation, the Atkinson Charitable Foundation, the Muscular Dystrophy Association of Canada, the Canadian Life Insurance Officers Association, the Banting Research Foundation, the Multiple Sclerosis Society and pharmaceutical companies also contribute significantly to the support of medical research in Canada. Finally, it should be remembered that granting agencies in the United States provide grants in aid of research to many investigators in several universities in Canada.

Subsection 4.—University Research

Although there is considerable diversity of purpose in the aims of Canadian universities and colleges, they may be described generally as (1) the diffusion of knowledge through some teaching, extension and evening classes, and written reports; (2) the preservation of knowledge with some reorganization from time to time; and (3) the extension of the boundaries of knowledge essentially through research.

There are, of necessity, differences in emphasis in carrying out these aims. The undergraduate courses are designed to provide broad basic understanding in a variety of subject fields, to be followed by a more extensive and intensive application in one or two of them. Graduate schools provide for a broader and deeper penetration and understanding in one field, supplemented perhaps with more general knowledge in related fields. Seminars, directed study, and individual research usually form a considerable part of advanced study. Most of these courses provide for practice in the research methods of the discipline—whether through experiment, questionnaire, logic or statistics—in order to prepare students capable of adding to present knowledge. This applies to the closely knit professional fields as well as to the more general branches.

For many years research in the universities was directed toward obtaining knowledge for its own sake and was considered pure research. Later it was recognized that the conclusions of such research provided the basic information for applied science and before long the universities, because of their unique position in having trained specialists and equipment, were involved in both basic and applied research. During World War II they were encouraged to undertake emergency and other contractual research and since then the trend toward broadening the field of research, increasing the capacity of universities to educate advanced students, and procuring large-scale costly equipment has

shown rapid advance. This has created new problems but has provided even greater opportunities for undertaking sizable projects which could not have been attempted otherwise and has thereby tended to knit the university into the very warp of industry.

Research conducted in the universities falls into three broad categories: projects undertaken by the student under the guidance of a professor or committee to meet requirements for an advanced degree; research undertaken by the professor, which may be of a more or less continuous nature; and larger research projects undertaken co-operatively on a faculty or interfaculty basis in university laboratories or in such specialized institutions connected with the university as medical research laboratories, institutes of microbiology and hygiene, science service laboratories and faculties of agriculture.

Some idea of the increase in research undertaken by Canadian universities may be obtained from a comparison of the situation in 1919 with that in 1961. In the former year, two universities—Toronto and McGill—offered graduate courses beyond the master's degree and graduated 11 students; in 1961 Ontario had five, Quebec three and six other provinces each had one major university offering graduate courses leading to the Ph.D. degree. They conferred 305 doctorates in course, distributed by fields as follows: biological sciences, including medical and agricultural sciences, 81; engineering and applied science, 19; humanities, 59; physical sciences, 101; and social sciences, 45. Subject matter covered in these courses and other research conducted by university professors and reported in professional journals is encyclopaedic and reflects specialization and variety. Outstanding research in particular fields has become associated with various universities, for example: nuclear research and geophysics in McGill, Queen's, McMaster and Saskatchewan; medical research in such institutions as the Connaught Laboratories and the Montreal Neurological Institute; agricultural research in the western universities; and fisheries research in British Columbia.

Outside financial support for university research comes primarily from four sources: agencies and departments of the Federal Government including the National Research Council and Defence Research Board, which provide grants for approved and contracted government-sponsored research; industry, which supports both basic and applied research; private foundations, which provide grants for approved research, sometimes in selected fields; and provincial governments.

Subsection 5.—Industrial Research

Industrial research in Canada is changing very rapidly. In the past, industry in general was largely unaware of the value of research to its own development and to that of the country, partly because many Canadian companies were subsidiaries of companies in Britain and the United States and partly because small companies found it impossible to finance their own research. The problem was accentuated by the vast size of the country, the absence of concentration of similar industries and the proximity to the relatively large research facilities of the United States.

However, the emergence of Canada as a highly industrialized society, its entrance into multitudinous fields of production, the rapid growth of many large nation-wide industries, the serving of a discriminating domestic market and the meeting of competition from abroad have had the effect of making Canadian manufacturing establishments research conscious and many of the larger ones now possess competent research organizations.

Industrial Research-Development Expenditures.*—The most recent survey of expenditures on industrial research in Canada was conducted during the first half of 1960 and provided figures for the calendar year 1959 and preliminary estimates for the year 1960. The next survey will be conducted in mid-1962 and data for 1961 and 1962 should be available by the end of 1962. The survey in its present form was started in 1958 when figures for the years 1957 and 1958 were collected.

* Summarized from DBS publication *Industrial Research-Development Expenditures in Canada, 1959* (Catalogue No. 13-516).

The type of industrial research-development covered by these surveys ranges from pure research designed to obtain new knowledge in the physical and life sciences to conceiving and developing new products, new processes, and major changes in products and processes and bringing them to the stage of production. Such activities as market and sales research and process and quality control are excluded. Companies surveyed were asked to report the cost of research-development done within the company in Canada and payments for research done outside the company in Canada; estimates of payments for research-development conducted outside the company and outside of Canada were also requested.

Since data for 1958 and 1960 are only estimates based on companies' intentions, more accurate comparisons may be made between the years 1957 and 1959. Total expenditures on research-development—including activities within companies, payments to outside companies in Canada and payments to organizations in other countries—decreased from \$148,200,000 in 1957 to \$121,000,000 in 1959. The decline was almost all accounted for by a substantial reduction in research work done within reporting companies, particularly in the transportation equipment industry which reported a drop in such expenditures of \$39,000,000. That decrease, however, was partially offset by a gain of \$11,200,000 in expenditures made on research-development by all other industrial groups.

Research-development expenditures for work done within the reporting companies, Canadian facilities in 1959 accounted for 80 p.c. of all outlays and close to 98 p.c. of all expenditures for work done in Canada. Reported expenditures on research-development done outside Canada amounted to \$21,700,000 in 1959, most of which was paid to parent or affiliated organizations in the United States. It should be noted, however, that many companies receive the benefits of research done by a parent or affiliate outside Canada without making any direct payment for such service, so that the \$21,700,000 expenditure may be considered as only a part of the total value of research done outside Canada that benefits companies located here.

The surveys covered all industrial firms in Canada with more than 100 employees, and these numbered about 2,800. In 1959, 471 firms out of this group had research expenditures to report; of the 471 firms, 171 had annual sales of more than \$10,000,000 and accounted for 85 p.c. of all research expenditures made in Canada.

1.—Total Research-Development Expenditures, 1955-60

Year	Expenditure on Research-Development in Canada		Expenditure on Research-Development Outside Canada	Total
	Done Within Reporting Company	Done Outside Reporting Company		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1955.....	51.4	1.9	..	..
1957.....	124.5	3.7	19.8	148.2
1958 (estimate).....	132.5	1	27.0	159.5
1959.....	96.7	2.6	21.7	121.0
1960 (estimate).....	81.8	1	27.3	109.1

¹ Included with expenditures outside Canada.

The following information is centred on expenditures on research-development done in Canada, most of which, as stated above, was undertaken within reporting companies with their own facilities. Table 2 shows the magnitude of changes from 1957 to 1959 for major industry groups. The effect on total expenditures of the decline in the transportation equipment industry is quite apparent.

RESEARCH-DEVELOPMENT EXPENDITURES PERFORMED WITHIN
REPORTING COMPANIES BY CERTAIN INDUSTRIES, 1957, 1959, 1960



2.—Research-Development Expenditures for Work Done in Canada,
by Major Industrial Group, 1957 and 1959

Industrial Group	1957		1959	
	Amount	P.C. of Total	Amount	P.C. of Total
	\$'000		\$'000	
Transportation equipment.....	67,279	52.5	26,437	26.6
Electrical apparatus and supplies.....	14,457	11.3	16,021	16.1
Chemical products.....	11,748	9.2	14,244	14.4
Totals.....	93,484	73.0	56,702	57.1
Other industries.....	34,697	27.0	42,570	42.9
Grand Totals.....	128,181	100.0	99,272	100.0

Table 3 indicates trends in research-development expenditures performed within companies, by individual industry. To point up the fact that expenditure in all industries, other than transportation equipment, has increased from year to year and that, omitting transportation equipment, total expenditure has shown steady advance, the transportation equipment industry is given separately at the end of the table. It should be noted that electrical apparatus and supplies and chemical products industries account for more than 40 p.c. of the total outlays, excluding transportation, in all years shown.

3.—Research-Development Expenditures Performed Within Reporting Companies, by Industry, 1957-60

Industry	1957	1958 ¹	1959	1960 ¹
	\$	\$	\$	\$
Mining, quarrying and oil wells.....	4,835,332	4,143,122	4,907,029	5,168,654
Manufacturing—				
Foods and beverages.....	1,355,851	1,480,150	1,793,626	1,971,900
Rubber products.....	1,145,619	1,121,000	1,219,165	1,199,140
Textile products.....	1,292,876	1,333,500	1,395,769	1,462,940
Wood products.....	117,177	124,400	229,581	242,252
Paper products.....	5,700,747	6,066,393	6,571,953	6,822,565
Iron and steel products.....	4,045,081	4,526,800	5,569,828	5,747,984
Non-ferrous metal products.....	5,626,034	6,837,880	5,903,514	6,709,421
Electrical apparatus and supplies.....	14,444,799	14,871,067	15,903,065	17,551,660
Non-metallic mineral products.....	1,115,368	1,204,781	1,353,830	1,444,771
Products of petroleum and coal.....	2,934,400	3,420,000	3,761,700	4,224,000
Chemical products.....	11,717,093	13,479,184	14,133,296	12,818,696
Other manufacturing (incl. tobacco and tobacco products, leather products, printing and miscellaneous).....	1,750,936	2,300,919	3,004,378	2,617,766
Transportation, storage, communication and public utility operations.....	2,377,100	2,553,000	2,779,440	3,126,460
Other non-manufacturing (incl. construction, scientific and engineering services and trade associations).....	1,505,533	1,405,500	2,593,485	2,600,840
Totals (excl. Transportation equipment).....	59,963,946	64,867,696	71,119,659	73,709,049
Transportation equipment.....	64,566,901	67,613,104	25,570,722	8,072,106
Totals, All Industries.....	124,530,847	132,480,800	96,690,381	81,781,155

¹ Estimates based on companies' intentions.

Table 4 gives the distribution of research-development expenditures in 1959 by product field. Of the total of \$96,700,000, representing outlays in Canada within reporting companies and funds from affiliates, government and other sources, more than 50 p.c. was for research-development expenditures on aircraft and parts, chemicals and electronics. The Federal Government provided the transportation equipment industry with \$13,000,000 in 1959, most of which was for aircraft and parts.

4.—Research-Development Expenditures Performed Within Reporting Companies, by Product Field, 1959

Product Field	Amount	P.C. of Total	Product Field	Amount	P.C. of Total
	\$'000			\$'000	
Aircraft and parts.....	23,601	24.4	Petroleum and natural gas.....	2,271	2.4
Chemicals (except drugs and medicines).....	16,089	16.6	Drugs and medicines.....	2,030	2.1
Electronics.....	10,369	10.7	Motor vehicles and parts.....	1,536	1.6
Primary metals.....	10,250	10.6	Professional and scientific instruments.....	953	1.0
Electrical equipment (excluding electronics).....	8,489	8.8	Other.....	14,853	15.4
Machinery (excluding electrical)...	3,597	3.7			
Fabricated metals.....	2,653	2.7			
			Totals.....	96,690	100.0

The sources of funds for research-development done within companies also changed substantially from 1957 to 1959. Table 5 shows that most of the differences were caused by changes in the allocation of government funds for research-development in the transportation equipment industry. Because of this, the total value of research done within companies declined substantially even though reporting companies and their affiliates increased their own expenditures significantly.

5.—Sources of Funds for Research-Development Performed Within Reporting Companies, by Industry, 1957 and 1959

Industry		Reporting Company	Parent, Affiliated and/or Subsidiary Companies	Government Funds	Other	Total
		\$	\$	\$	\$	\$
Mining, quarrying and oil wells.....	1957	3,480,372	883,420	—	471,530	4,835,322
	1959	4,817,385	27,000	—	62,644	4,907,029
Manufacturing—						
Foods and beverages.....	1957	1,239,241	115,250	1,000	360	1,355,851
	1959	1,588,587	205,039	—	—	1,793,626
Rubber products.....	1957	842,590	191,251	111,778	—	1,145,619
	1959	956,388	262,777	—	—	1,219,165
Textile products.....	1957	1,290,376	1,500	—	1,000	1,292,876
	1959	1,363,769	32,000	—	—	1,395,769
Wood products.....	1957	117,177	—	—	—	117,177
	1959	229,581	—	—	—	229,581
Paper products.....	1957	3,603,578	797,169	—	1,300,000	5,700,747
	1959	4,463,779	868,918	22,294	1,216,962	6,571,953
Iron and steel products.....	1957	3,995,953	11,311	15,850	21,967	4,045,081
	1959	5,419,770	58,138	79,020	12,900	5,569,828
Transportation equipment.....	1957	3,983,041	35,000	58,030,605	2,518,255	64,566,901
	1959	11,506,473	100,000	13,964,249	—	25,570,722
Non-ferrous metal products.....	1957	2,095,034	3,464,000	40,000	27,000	5,626,034
	1959	2,471,446	3,428,640	2,400	1,028	5,903,514
Electrical apparatus and supplies.....	1957	11,215,183	993,708	1,986,012	249,896	14,444,799
	1959	8,745,939	752,146	6,386,856	18,124	15,903,065
Non-metallic mineral products.....	1957	1,085,398	29,970	—	—	1,115,368
	1959	676,060	677,770	—	—	1,353,830
Products of petroleum and coal.....	1957	1,780,323	1,154,077	—	—	2,934,400
	1959	1,939,719	1,821,981	—	—	3,761,700
Chemical products.....	1957	10,905,636	479,492	188,215	143,750	11,717,093
	1959	13,556,529	495,811	17,396	63,560	14,133,296
Other manufacturing (incl. tobacco and tobacco products, leather products, printing and miscellaneous manufacturing industries).....	1957	714,958	—	920,978	115,000	1,750,936
	1959	2,127,528	286,307	342,135	248,408	3,004,378
Transportation, storage, communication and public utility operations.....	1957	2,267,100	110,000	—	—	2,377,100
	1959	2,779,440	—	—	—	2,779,440
Other non-manufacturing (incl. construction, scientific and engineering services and trade associations).....	1957	64,068	780,148	245,854	415,463	1,505,533
	1959	899,913	733,140	294,489	665,943	2,593,485
Totals.....	1957	48,680,028	9,016,296	61,540,292	5,264,221	124,530,837
	1959	63,542,306	9,749,667	21,108,839	2,289,569	96,690,381
Percentage of Total.....	1957	39.1	7.3	49.4	4.2	100.0
	1959	65.7	10.1	21.8	2.4	100.0

Section 5.—Federal Government Expenditures on Scientific Activities

During the year ended Mar. 31, 1959, the Federal Government spent \$222,600,000 on scientific activities. The following year, expenditure declined slightly to \$212,300,000. Most of this expenditure is made by six departments or agencies of the Federal Government and for the most part each organization provides specialized scientific services in a specific field. The departments and agencies spending most of the funds for scientific activities are as follows, with the expenditure indicated for the fiscal year 1959-60 and for 1958-59 in brackets: Department of Agriculture, \$31,069,000 (\$27,213,000); Atomic Energy of Canada Limited, \$32,130,000 (\$27,545,000); Department of Mines and Technical Surveys, \$27,684,000 (\$27,055,000); National Research Council, \$32,824,000 (\$27,160,000); Department of National Defence, \$34,020,000 (\$66,229,000); and Defence Research Board, \$30,600,000 (\$29,300,000). The largest change between the two years occurred in the Department of National Defence expenditures as a result of a decision to substantially readjust the program being carried out in connection with the procurement of military aircraft.

Scientific activities include all activities in the natural sciences concerned with the creation of new knowledge, new applications of knowledge to useful purposes or the furtherance of both the creation of knowledge or new applications. Included in scientific activities are scientific-research development, capital expenditures for research plant and equipment, scientific data collection, scientific information and scholarship and fellowship programs.

Research-development including research done within the facilities of the Federal Government as well as work done by private organizations and financed by the government, amounted to over 70 p.c. of all government expenditures on scientific activities during the fiscal year 1959-60. Costs of the planning and administering of research-development programs as well as grants in aid of research are included as part of the research-development program.

Scientific data collection includes the collection of scientific data on natural phenomena where such data have general use such as for mapping, collection of geologic, hydrologic, geo-magnetic, meteorologic and other physical data; collection of entomological specimens and other biological data. During the year ended Mar. 31, 1960, \$20,600,000 was spent on this activity, an increase of \$2,500,000 over the previous year. The Surveys and Mapping Branch of the Department of Mines and Technical Surveys accounted for 75 p.c. of the expenditures for scientific data collection.

Scientific information includes library operations, translation, procurement and publication services in connection with information required in or resulting from scientific activities. In the fiscal year 1959-60, \$4,900,000 was spent on this aspect of scientific activities, with much of the expenditure being made by the Surveys and Mapping Branch of the Department of Mines and Technical Surveys. Scholarship and fellowship programs include grants to government and non-government employees who are or will be engaged in a scientific activity. This program amounted to \$2,000,000 during the fiscal year 1959-60, most of which was administered by the National Research Council.

Two surveys of expenditure of the Federal Government on scientific activities have been carried out. The first survey requested information based on final expenditure for the fiscal year 1958-59 and for expected expenditure based on departmental estimates for 1959-60. The results of this survey were presented in greater detail in the 1961 Year Book and were published in bulletin form (Catalogue No. 13-515). The second survey has been carried out requesting similar information for the fiscal years 1960-61 and 1961-62; results of this survey will be reviewed in the 1963 Year Book.

CHAPTER VIII.—CRIME AND DELINQUENCY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Section 1.—Canadian Criminal Law and Procedure†

The system under which justice is administered in a State is never rigid. To have it so would be neither expedient nor indeed possible. A judicial system must grow and adapt itself to the requirements of the people and the exact limits of the powers of different legislative bodies require continued definition.

The criminal law of Canada has as its foundation the criminal common law of England built up through the ages and consisting first of customs and usages, and later expanded by principles enunciated by generations of judges. There is no statutory declaration of the introduction of English criminal law into those parts of Canada that are now the Provinces of New Brunswick, Nova Scotia and Prince Edward Island. Its introduction there depends upon a principle of the common law itself by which English law was declared to be in force in uninhabited territory discovered and planted by British subjects, except in so far as local conditions made it inapplicable. The same may be said of Newfoundland although the colony dealt with the subject in a statute of 1837. In Quebec its reception depends upon a Royal Proclamation of 1763 and the Quebec Act of 1774. In each of the other provinces and in the Yukon and Northwest Territories the matter has been dealt with by statute.

The judicial systems of the provinces as they exist today are based upon the British North America Act of 1867. Sect. 91 of the Act provides that "The exclusive legislative authority of the Parliament of Canada extends to . . . the criminal law, except the constitution of courts of criminal jurisdiction but including the procedure in criminal matters". By Sect. 92 (14), the legislature of the province exclusively may make laws in relation to "the administration of justice in the province, including the constitution, maintenance and organization of provincial courts, both of civil and criminal jurisdiction and including procedure in civil matters in its courts". The Parliament of Canada may, however (Sect. 101), establish any additional courts for the better administration of the laws of Canada. It should be noted that the Statute of Westminster, 1931 effected important changes

* Except as otherwise credited, this Chapter has been revised in the Judicial Section, Health and Welfare Division, Dominion Bureau of Statistics.

† Prepared by the Criminal Law Section, Department of Justice, Ottawa.

particularly by abrogating the Colonial Laws Validity Act, 1865 (Br.) and confirming the right of a dominion to make laws having extraterritorial operation. Particulars of the federal judiciaries are given in Chapter II, pp. 71-73, and provincial judiciaries are dealt with briefly at pp. 73-74; more detailed information on provincial judiciaries is given in the 1954 Year Book, pp. 47-55.

At the time of Confederation each of the colonies affected had its own body of statutes relating to the criminal law. In 1869, in an endeavour to assimilate them into a uniform system applicable throughout Canada, Parliament passed a series of Acts some of which dealt with offences of special kinds and others with procedure. Most notable of the latter was the Criminal Procedure Act, but other Acts provided for the speedy trial or summary trial of indictable offences, the powers and jurisdiction of justices of the peace in summary conviction matters and otherwise, and the procedure in respect of juvenile offenders.

Codification of the criminal law through a Criminal Code Bill founded on the English draft code of 1878, Stephen's *Digest of Criminal Law*, Burbridge's *Digest of the Canadian Criminal Law*, and the relevant Canadian statutes was brought about by the Minister of Justice, Sir John Thompson, in 1892. This Bill became the Criminal Code of Canada and came into force on July 1, 1893. It must be remembered, however, that the Criminal Code was not exhaustive of the criminal law. It was still necessary to refer to English law in certain matters of procedure and it was still possible to prosecute for offences at common law. Moreover, Parliament has declared offences against certain other Acts, e.g., the Opium and Narcotic Drug Act, to be criminal offences and the same was done in the Defence of Canada Regulations and the Wartime Prices and Trade Board Regulations (neither now in force) promulgated under the authority of the War Measures Act.

It is often difficult to distinguish between 'law' and 'procedure'. Procedure may be interpreted to relate simply to the organic working of the courts but, in a wider sense, it may also affect the rights or alter the legal relations arising out of any given state of facts. For present purposes it will be useful to note that writers on jurisprudence describe law as being substantive or adjective. "Substantive law is concerned with the ends which the administration of justice seeks; procedural (adjective) law deals with the means and instruments by which these ends are to be obtained."* With reference to the criminal law, the former may be taken to include the provisions concerning criminal responsibility, the definition of 'offences' and the punishment for those offences, and the latter to include provisions for enforcement, e.g., powers to search and to arrest, for the modes of trial and for the proof of facts. Broadly speaking, the Criminal Code observes the distinction although it might appear that the provisions for preventive detention of habitual criminals and criminal sexual psychopaths partake of the nature of both classes.

An examination and study of the Criminal Code was authorized by Order in Council dated Feb. 3, 1949, and the Commission assigned the task of revising the Code presented its report with a draft Bill in February 1952. After coming before successive sessions of Parliament it was finally enacted on June 15, 1954 and the new Criminal Code (SC 1953-54, c. 51) came into effect on Apr. 1, 1955. A short outline of the system that existed under the repealed Code together with the major revisions effected by the new Code is given in the 1955 Year Book, pp. 295-298.

Since the new Code came into force several amendments have been made, for the most part in relation to procedure. Among the most notable of these, as well in point of procedure as of substance, are: an amendment in 1956 providing that motions for leave to appeal to the Supreme Court of Canada in criminal cases should be heard by a quorum (at least five) of judges of that Court instead of a single judge; amendments effected by SC 1959, c. 41, providing a statutory extension of the definition of "obscenity" and making provision for seizure and condemnation of offending material without a charge necessarily being laid against any person; extensive amendments relating to the allowing of time for payment of fines; amendments dealing with offences committed in aircraft in flight over the high seas; an amendment forbidding the publication in a newspaper or broadcast of

* Salmond on *Jurisprudence*, 7th Edition, p. 496.

a report that any admission or confession was tendered in evidence at a preliminary inquiry or a report of the nature of such admission or confession unless the accused has been discharged or, if the accused has been committed for trial, the trial has ended.

The Parole Act (SC 1958, c. 38), brought into force on Feb. 15, 1959, revises the parole system and provides for the establishment of a National Parole Board (see pp. 373-374).

It is most important to notice that in 1960 (SC 1960, c. 44) Parliament enacted what is to be known as the Canadian Bill of Rights. Although the Act sets out further details, its general scope appears in Sect. 1, which reads as follows:—

"1. It is hereby recognized and declared that in Canada there have existed and shall continue to exist without discrimination by reason of race, national origin, colour, religion or sex, the following human rights and fundamental freedoms, namely,

- (a) the right of the individual to life, liberty, security of the person and enjoyment of property, and the right not to be deprived thereof except by due process of law;
- (b) the right of the individual to equality before the law and the protection of the law;
- (c) freedom of religion;
- (d) freedom of speech;
- (e) freedom of assembly and association; and
- (f) freedom of the press."

Although the Bill of Rights has been invoked on various occasions during its first year in force, the courts have not held it to affect the operation of the Criminal Code.

There were important changes to the Criminal Code in 1961 (SC 1960-61, cc. 43 and 44). The new classification of murder is best shown by quoting Sects. 202A and 206 of c. 44:—

"202A. (1) Murder is capital murder or non-capital murder.

(2) Murder is capital murder, in respect of any person, where

- (a) it is planned and deliberate on the part of such person,
- (b) it is within section 202 and such person
 - (i) by his own act caused or assisted in causing the bodily harm from which the death ensued,
 - (ii) by his own act administered or assisted in administering the stupefying or overpowering thing from which the death ensued,
 - (iii) by his own act stopped or assisted in the stopping of the breath from which the death ensued,
 - (iv) himself used or had upon his person the weapon as a consequence of which the death ensued, or
 - (v) counselled or procured another person to do any act mentioned in subparagraph (i), (ii) or (iii) or to use any weapon mentioned in subparagraph (iv), or
- (c) such person by his own act caused or assisted in causing the death of
 - (i) a police officer, police constable, constable, sheriff, deputy sheriff, sheriff's officer or other person employed for the preservation and maintenance of the public peace, acting in the course of his duties, or
 - (ii) a warden, deputy warden, instructor, keeper, gaoler, guard or other officer or permanent employee of a prison, acting in the course of his duties,
 or counselled or procured another person to do any act causing or assisting in causing the death.

(3) All murder other than capital murder is non-capital murder."

Sect. 206 of the Act (c. 44) was repealed and the following substituted therefore:—

"206. (1) Every one who commits capital murder is guilty of an indictable offence and shall be sentenced to death.

(2) Every one who commits non-capital murder is guilty of an indictable offence and shall be sentenced to imprisonment for life.

(3) Notwithstanding subsection 1, a person who appears to the court to have been under the age of eighteen years at the time he committed a capital murder shall not be sentenced to death upon conviction therefor but shall be sentenced to imprisonment for life.

(4) For the purposes of Part XX, the sentence of imprisonment for life prescribed by this section is a minimum punishment."

The Act provides an automatic appeal to the Court of Appeal for a person sentenced to death, and also that a person so sentenced may appeal to the Supreme Court of Canada on any ground of law or fact or mixed law and fact.

C. 44 of the 1960-61 Statutes contains a long list of changes in the Criminal Code. As in previous amendments, most of these changes deal with procedure but it may be useful to mention the change in relation to persons formerly described as "criminal sexual psychopaths", who may become liable to preventive detention. The term criminal sexual psychopaths has been dropped and the relevant definition now reads as follows:—

"... 'dangerous sexual offender' means a person who, by his conduct in any sexual matter, has shown a failure to control his sexual impulses, and who is likely to cause injury, pain or other evil to any person, through failure in the future to control his sexual impulses or is likely to commit a further sexual offence."

Section 2.—Adult Offenders and Convictions

The main interest in adult criminal statistics is concerned with those persons guilty of the more serious crimes. Such offenders are fewer than those who commit summary conviction offences but, from the standpoint of the protection of society, they are more important. The following Subsection 1 deals with adults convicted of indictable offences, Subsection 2 with young adult offenders convicted of indictable offences, Subsection 3 with convictions for summary conviction offences and Subsection 4 with appeals.

A more adequate series of statistics on crime and delinquency is being developed by the Dominion Bureau of Statistics. However, until such time as the new coverage becomes available, the series of tables carried in former editions of the Year Book is being continued with some omissions and with little textual comment.

Subsection 1.—Adults Convicted of Indictable Offences

Statistics of indictable crimes are based on *persons*. While individuals may be charged with more than one offence, only one offence is tabulated for each person. This offence is selected according to the following criteria: (1) if the person was tried on several charges, the offence selected is that for which proceedings were carried to the furthest stage—conviction and sentence; (2) if there were several convictions, the offence selected is that for which the heaviest punishment was awarded; (3) if the final result of proceedings on two or more charges was the same, the offence selected is the more serious one, as measured by the maximum penalty allowed by the law; (4) if a person was prosecuted for one offence and convicted of another—for example, charged with murder and convicted of manslaughter—the offence selected is the one of which the person was convicted.

In 1960 there were 39,343 adults charged with 73,411 indictable offences, of whom 35,443 were found guilty of 64,707 offences. In 1959, 34,812 adults were charged with 64,085 indictable offences, of whom 31,092 were found guilty of 56,204 offences.

1.—Persons Convicted of Indictable Offences, with Ratio per 100,000 Population 16 Years of Age or Over, by Province, 1959 and 1960

Province or Territory	Persons Convicted		Persons Convicted per 100,000 Population 16 Years of Age or Over	
	1959	1960	1959	1960
	No.	No.	No.	No.
Newfoundland.....	551	469	217	180
Prince Edward Island.....	84	32	131	49
Nova Scotia.....	1,362	1,343	299	292
New Brunswick.....	758	888	211	243
Quebec.....	6,250	6,806	199	212
Ontario.....	12,077	13,482	302	331
Manitoba.....	908	2,050	155	345
Saskatchewan.....	1,165	1,463	200	250
Alberta.....	3,404	3,831	429	471
British Columbia.....	4,415	4,868	411	447
Yukon and Northwest Territories.....	118	211	578	981
Canada.....	31,092	35,443	274	307

2.—Adults Charged and Convicted of Indictable Offences, by Class of Offence, 1959 and 1960

Class of Offence	1959			1960			Increase or Decrease in Persons Convicted
	Adults Charged	Adults Convicted		Adults Charged	Adults Convicted		
		M.	F.		M.	F.	
	No.	No.	No.	No.	No.	No.	p.c.
Criminal Code							
Class I.—Offences against the Person	5,536	4,250	210	6,113	4,750	235	+11.8
Abduction and kidnapping	21	9	1	44	34	—	+240.0
Assault, causing bodily harm, common, on police and obstruction	3,854	3,035	145	4,220	3,375	175	+11.6
Offences against females ¹	788	571	21	930	687	26	+20.4
Causing death by criminal negligence, ² manslaughter and murder.	220	112	3	207	108	4	— 2.6
Attempted murder, causing bodily harm and danger	165	117	14	178	104	11	—12.2
Duties tending to preservation of life	30	20	3	17	12	1	—43.5
Other offences against the person	458	386	23	517	430	18	+ 9.5
Class II.—Offences against Property with Violence	6,981	6,332	103	8,267	7,537	105	+18.8
Breaking and entering a place, extortion and robbery	6,981	6,332	103	8,267	7,537	105	+18.8
Class III.—Offences against Property without Violence	17,527	14,615	1,336	19,933	16,610	1,701	+14.8
Fraud and false pretences	2,112	1,659	178	2,414	1,929	222	+17.1
Having in possession	1,693	1,381	73	1,974	1,657	68	+18.6
Theft	13,717	11,575	1,085	16,545	13,024	1,411	+14.0
Class IV.—Malicious Offences against Property	704	580	25	752	623	30	+ 7.9
Arson and other fires	110	83	5	98	75	8	— 5.7
Other interference with property	594	497	20	654	548	22	+10.3
Class V.—Forgery and Other Offences Relating to Currency	963	807	90	1,158	987	109	+22.2
Forgery and uttering forged documents	890	749	85	1,158	925	103	+23.3
Offences relating to currency	73	58	5	—	62	6	+ 7.9
Class VI.—Other Offences	2,434	1,991	173	2,585	2,078	220	+ 6.2
Criminal negligence in operation of motor vehicles	113	85	1	31	27	—	—68.6
Driving while ability to drive is impaired	199	185	2	223	202	1	+ 8.6
Driving while intoxicated	28	26	—	15	11	2	—50.0
Gaming, betting and lotteries	517	450	22	531	437	34	— 0.2
Keeping bawdy houses	139	38	91	154	36	102	+ 7.0
Various other offences	1,438	1,207	87	1,631	1,365	81	+14.4
Totals, Criminal Code	34,145	28,575	1,937	38,808	32,585	2,400	+14.7
Federal Statutes							
Opium and Narcotic Drug Act	642	379	178	516	290	151	—20.8
Other statutes	25	23	—	19	16	1	—26.1
Totals, Federal Statutes	667	402	178	535	306	152	—21.0
Grand Totals	34,812	28,977	2,115	39,343	32,891	2,552	+14.0

¹ Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction.² Includes causing death in the operation of a motor vehicle or otherwise.

3.—Persons Convicted of Indictable Offences classified by Occupation, Marital Status, Sex, Birthplace, etc., 1959 and 1960

Item	1959	1960	Item	1959	1960
No.	No.	No.	No.	No.	No.
Total Convictions.....	31,092	35,443	EDUCATIONAL STATUS		
TYPE OF OCCUPATION			Unable to read or write.....	326	375
Agriculture.....	1,298	1,383	Elementary.....	16,144	17,576
Armed Services.....	279	286	High school.....	11,295	13,340
Clerical.....	928	1,233	Superior.....	381	445
Commercial and managerial.....	1,950	2,088	Grade not stated.....	609	500
Construction.....	4,611	4,940	Not given.....	2,337	3,207
Finance.....	41	73			
Fishing, trapping and logging.....	1,337	1,365	AGE		
Labourer.....	5,948	7,313	16 to 19 years.....	9,734	10,970
Manufacturing and mechanical.....	3,094	3,370	20 to 24 years.....	6,688	7,737
Mining.....	603	599	25 to 44 years.....	11,146	12,467
Service—			45 years or over.....	2,788	3,200
Domestic.....	871	822	Not given.....	736	1,069
Personal.....	852	1,021			
Professional.....	296	348	BIRTHPLACE		
Public and protective.....	64	60	Canada.....	28,300	31,468
Other.....	150	126	British Isles and other Common-		
Student.....	1,650	2,007	wealth.....	649	861
Transportation and communica-			United States.....	250	284
tions.....	2,708	2,983	Europe.....	1,516	1,852
Unemployed and retired (incl.			Asia.....	51	69
housewives).....	3,582	4,134	Other foreign countries.....	22	23
Not given.....	1,030	1,292	Not given.....	304	886
MARITAL STATUS			RESIDENCE		
Single.....	20,291	22,902	Urban centres.....	24,261	28,017
Married.....	8,326	9,398	Rural districts.....	5,601	6,247
Widowed.....	325	349	Indeterminate.....	791	700
Divorced.....	266	311	Not given.....	439	479
Separated.....	1,049	1,437			
Not given.....	835	1,046			
SEX					
Male.....	28,977	32,891			
Female.....	2,115	2,552			

4.—Females Convicted of Indictable Offences, by Province, 1959 and 1960

Province or Territory	Females Convicted		Females Convicted to Total Convictions	
	1959	1960	1959	1960
No.	No.	p.c.	p.c.	
Newfoundland.....	41	25	7.4	5.3
Prince Edward Island.....	1	2	1.2	6.2
Nova Scotia.....	80	66	5.9	4.9
New Brunswick.....	29	38	3.8	4.3
Quebec.....	311	352	5.0	5.2
Ontario.....	904	1,035	7.5	7.7
Manitoba.....	45	244	5.0	11.9
Saskatchewan.....	51	86	4.4	5.9
Alberta.....	280	296	8.2	7.7
British Columbia.....	369	402	8.4	8.3
Yukon and Northwest Territories.....	4	6	3.4	2.8
Canada.....	2,115	2,552	6.8	7.2

5.—Persons Convicted of More than One Offence at the Time of Trial compared with Persons Convicted of One Offence, 1956-60

Item	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Persons Convicted of—					
2 offences.....	3,463	4,308	4,685	4,396	4,940
3 offences.....	1,101	1,337	1,469	1,515	1,904
4 offences.....	607	826	852	816	933
5 offences.....	306	394	463	474	569
6 offences.....	209	259	290	298	365
7 offences.....	119	146	191	215	256
8 offences.....	108	159	180	166	196
9 offences.....	83	100	110	109	155
10 offences.....	69	87	104	69	109
11 to 20 offences.....	252	288	364	334	392
21 offences and over.....	76	95	163	113	119
Totals, Convicted of More than One Offence.....	6,393	7,999	8,871	8,505	9,938
Totals, Convicted of One Offence.....	21,020	23,766	25,675	22,587	25,505
Grand Totals.....	27,413	31,765	34,546	31,092	35,443

6.—Persons Charged and Convictions for Indictable Offences, by Province, 1959 and 1960

Province or Territory	1959			1960		
	Charges	Convictions		Charges	Convictions	
	No.	No.	p.c.	No.	No.	p.c.
Newfoundland.....	584	551	94.3	491	469	95.5
Prince Edward Island.....	86	83	96.5	34	32	94.1
Nova Scotia.....	1,546	1,362	88.1	1,494	1,343	89.9
New Brunswick.....	773	755	97.7	911	888	97.5
Quebec.....	7,095	6,282	88.1	7,601	6,806	89.5
Ontario.....	13,873	12,080	87.1	15,458	13,482	87.2
Manitoba.....	932	908	97.4	2,122	2,050	96.6
Saskatchewan.....	1,232	1,165	94.6	1,546	1,463	94.6
Alberta.....	3,584	3,402	94.9	4,026	3,831	95.2
British Columbia.....	4,984	4,416	88.6	5,441	4,868	89.5
Yukon and Northwest Territories.....	123	118	95.9	219	211	96.3
Canada.....	34,812	31,092	89.3	39,343	35,443	90.1

7.—Persons Charged with Indictable Offences, Disposition of Cases and Previous Convictions, 1959 and 1960

Item	1959	1960	Item	1959	1960
	No.	No.		No.	No.
Charges.....	34,812	39,343	Convictions of males.....	28,977	32,891
Acquittals.....	3,533	3,676	Convictions of females.....	2,115	2,552
Disagreement of jury.....	12	6	First convictions.....	9,715	10,759
Stay of proceedings.....	124	151	Second convictions.....	4,247	5,148
No Bill.....	11	29	Reiterated convictions.....	11,029	13,021
Detention because of insanity.....	40	38	Not given.....	6,101	6,515

8.—Sentences Given for Indictable Offences, by Province, 1960

Sentence	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Option of fine.....	161	7	307	196	1,295	2,698	479	458	1,161	896	45	7,703
Gaol—												
Under one year.....	131	19	298	261	2,300	3,397	501	517	1,238	1,612	123	10,397
One year or over.....	45	—	9	42	219	673	158	102	413	429	10	2,100
Reformatory.....	2	—	1	2	114	1,614	40	—	1	351	—	2,125
Penitentiary—												
Under two years.....	—	—	3	10	2	34	2	5	10	17	—	83
Two years and under five.	8	—	231	100	762	652	113	70	244	265	8	2,453
Five years and under ten..	—	—	10	3	107	90	7	6	32	33	2	290
Ten years and under four-												
teen.....	1	—	—	—	29	25	—	2	1	14	—	72
Fourteen years or over....	—	—	1	—	9	4	—	1	3	7	—	25
Life.....	—	—	—	—	1	2	—	—	1	3	—	7
Death.....	—	—	—	1	—	3	—	—	5	1	—	10
Suspended sentence without probation.....	89	6	184	272	1,198	1,092	562	179	325	430	21	4,358
Suspended sentence with proba- tion.....	32	—	299	1	770	3,198	188	123	397	810	2	5,820
Totals.....	469	32	1,343	888	6,806	13,482	2,050	1,463	3,831	4,868	211	35,443

9.—Method of Trial of Persons Charged with Indictable Crimes, showing Disposition of Cases, by Sex and by Province, 1960

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
By Judge and Jury—												
Conviction.....	M. 9	—	31	5	90	232	22	32	14	99	2	536
F. —	—	—	2	1	1	19	1	2	—	2	—	28
Acquittal.....	M. 1	—	6	6	29	111	10	18	—	57	2	240
F. —	—	—	—	—	3	9	—	—	—	2	—	14
Detention because of insanity.....	M. 3	—	—	1	3	—	—	1	—	1	—	9
F. —	—	—	—	—	3	—	—	—	—	1	—	4
Disagreement of jury...M. —	—	—	—	—	—	4	—	1	—	1	—	6
Stay of proceedings....M. —	—	—	—	1	—	1	1	—	—	9	—	12
No Bill.....	M. —	—	—	—	—	28	—	—	—	—	—	28
F. —	—	—	—	—	—	1	—	—	—	—	—	1
By a Judge without Jury—												
Conviction.....	M. 1	1	35	3	820	312	41	42	247	105	—	1,607
F. —	—	—	2	—	21	16	3	4	4	5	—	55
Acquittal.....	M. —	1	5	—	305	104	15	14	35	39	—	518
F. —	—	1	—	—	16	10	2	—	2	4	—	35
Detention because of insanity.....	M. —	—	—	—	—	—	—	—	1	—	—	1
Stay of proceedings....M. —	—	—	—	—	—	2	2	—	3	5	—	12
F. —	—	—	—	—	1	—	—	—	—	1	—	2

9.—Method of Trial of Persons Charged with Indictable Crimes, showing Disposition of Cases, by Sex and by Province, 1960—concluded

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
By a Magistrate with Consent—												
Conviction.....M.	255	8	681	437	2,911	7,142	728	779	1,784	2,007	105	16,837
F.	12	—	29	12	112	416	68	32	95	142	3	921
Acquittal.....M.	12	—	70	9	166	869	6	22	70	140	3	1,367
F.	1	—	3	—	15	94	—	3	5	22	—	143
Detention because of insanity.....M.	1	—	1	—	7	7	—	1	—	1	—	18
F.	—	—	1	—	—	—	—	—	1	—	—	2
Stay of proceedings.....M.	—	—	—	—	—	—	14	—	—	50	—	64
F.	—	—	—	—	—	—	1	—	—	18	—	19
By a Magistrate, Absolute Jurisdiction—												
Conviction.....M.	179	21	530	405	2,633	4,761	1,015	524	1,490	2,255	98	13,911
F.	13	2	33	25	218	584	172	48	197	253	3	1,548
Acquittal.....M.	3	—	56	6	218	667	3	21	67	180	3	1,224
F.	1	—	6	—	27	67	2	2	11	19	—	135
Detention because of insanity.....M.	—	—	2	—	—	1	—	—	—	—	—	3
F.	—	—	—	—	—	1	—	—	—	—	—	1
Stay of proceedings.....M.	—	—	1	—	2	—	11	—	—	16	—	30
F.	—	—	—	—	—	—	5	—	—	7	—	12
Totals, Persons Charged.	491	34	1,494	911	7,601	15,458	2,122	1,546	4,026	5,441	219	39,343
Totals, Persons Convicted.	469	32	1,343	888	6,806	13,482	2,050	1,463	3,831	4,868	211	35,443

10.—Persons Charged and Convicted of Indictable Crimes according to Trial Court, by Province, 1959 and 1960

Province and Item	1959					1960				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Totals	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Totals
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—										
Charged.....	504	58	2	20	584	420	57	1	13	491
Convicted.....	478	56	2	15	551	403	56	1	9	469
Prince Edward Island—										
Charged.....	81	—	5	—	86	31	—	3	—	34
Convicted.....	79	—	4	—	83	31	—	1	—	32
Nova Scotia—										
Charged.....	1,456	5	50	35	1,546	1,409	4	42	39	1,494
Convicted.....	1,288	5	47	22	1,362	1,269	4	37	33	1,343
New Brunswick—										
Charged.....	746	8	3	16	773	892	2	4	13	911
Convicted.....	733	8	3	11	755	877	2	3	6	888
Quebec—										
Charged.....	4,913	1,110	891	181	7,095	5,152	1,157	1,167	125	7,601
Convicted.....	4,450	1,099	508	135	6,252	4,729	1,145	845	87	6,806
Ontario—										
Charged.....	13,054	37	621	161	13,873	14,578	31	720	129	15,458
Convicted.....	11,493	36	454	97	12,080	12,873	30	508	71	13,482

10.—Persons Charged and Convicted of Indictable Crimes according to Trial Court, by Province, 1959 and 1960—concluded

Province or Territory and Item	1959					1960				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Totals	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Totals
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Manitoba—										
Charged.....	623	236	27	46	932	1,760	265	64	33	2,122
Convicted.....	620	235	22	31	908	1,718	265	45	22	2,050
Saskatchewan—										
Charged.....	1,118	4	57	53	1,232	1,430	2	62	52	1,546
Convicted.....	1,092	4	40	29	1,165	1,381	2	46	34	1,463
Alberta—										
Charged.....	3,338	1	27	218	3,584	3,717	3	21	285	4,026
Convicted.....	3,192	1	23	186	3,402	3,563	3	19	246	3,831
British Columbia—										
Charged.....	4,036	613	189	146	4,984	4,538	572	186	145	5,441
Convicted.....	3,614	577	144	81	4,416	4,108	549	125	86	4,868
Yukon and Northwest Territories—										
Charged.....	118	—	—	5	123	215	—	—	4	219
Convicted.....	115	—	—	3	118	209	—	—	2	211
Canada—										
Charged.....	29,987	2,072	1,872	881	34,812	34,142	2,093	2,270	838	39,343
Convicted.....	27,154	2,021	1,307	610	31,092	31,161	2,056	1,630	596	35,443

Subsection 2.—Young Adult Offenders (16-24 Years)

Since young men and women in the age group 16-24 years include some of the most daring offenders who already may be experienced criminals as well as first offenders likely to be turned from crime by further education and training, this group is dealt with separately in Tables 11, 12 and 13.

11.—Young Adult Offenders, by Age Group, Sex and Province, 1959 and 1960

Year, Age Group and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1959												
16 - 17 years.....	M. 88	12	248	101	1,383	1,685	230	199	441	709	3	5,099
F. 9	—	—	9	4	50	76	16	6	31	35	—	236
18 - 19 ".....	M. 72	7	196	126	876	1,644	115	173	453	504	13	4,179
F. 4	—	—	9	6	27	80	5	7	36	45	1	220
20 - 24 ".....	M. 124	20	319	154	1,309	2,387	170	288	725	743	33	6,272
F. 5	—	—	10	6	53	195	8	12	69	57	1	416
Totals, 1959.....	302	39	791	397	3,698	6,067	544	685	1,755	2,093	51	16,422
1960												
16 - 17 years.....	M. 89	5	244	152	1,502	2,032	277	220	520	701	18	5,760
F. 2	—	—	12	7	34	88	17	13	36	42	4	255
18 - 19 ".....	M. 78	4	229	131	893	1,780	233	191	481	639	27	4,686
F. 2	—	—	7	4	31	105	44	11	29	36	—	269
20 - 24 ".....	M. 133	8	293	201	1,506	2,657	378	310	794	877	46	7,203
F. 4	—	—	11	7	89	226	46	10	63	78	—	534
Totals, 1960.....	308	17	796	502	4,055	6,888	995	755	1,923	2,373	95	18,707

12.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1959 and 1960

Class of Offence	1959		1960	
	Males	Females	Males	Females
	No.	No.	No.	No.
Criminal Code				
Class I.—Offences against the Person	1,619	60	1,830	71
Abduction and kidnapping.....	5	1	22	—
Assault, causing bodily harm, common, on police and obstruction.....	1,186	44	1,282	63
Offences against females ¹	234	1	325	2
Causing death by criminal negligence, ² manslaughter and murder.....	36	1	36	—
Attempted murder, causing bodily harm and danger.....	29	4	39	—
Duties tending to preservation of life.....	2	2	—	1
Other offences against the person.....	127	7	126	5
Class II.—Offences against Property with Violence	4,327	74	5,283	73
Breaking and entering a place, extortion and robbery.....	4,327	74	5,283	73
Class III.—Offences against Property without Violence	8,074	536	8,906	676
Fraud and false pretences.....	391	65	441	92
Having in possession.....	663	27	804	35
Theft.....	7,020	444	7,661	549
Class IV.—Malicious Offences against Property	349	14	380	19
Arson and other fires.....	46	—	32	6
Other interference with property.....	303	14	348	13
Class V.—Forgery and Other Offences Relating to Currency	309	39	374	49
Forgery and uttering forged documents.....	293	39	351	48
Offences relating to currency.....	16	—	23	1
Class VI.—Other Offences	793	77	823	97
Criminal negligence in operation of motor vehicles.....	31	—	13	—
Driving while ability to drive is impaired.....	37	1	16	—
Driving while intoxicated.....	8	—	3	1
Gaming, betting and lotteries.....	15	1	28	1
Keeping bawdy houses.....	11	35	6	44
Various other offences.....	691	40	757	51
Totals, Criminal Code	15,471	800	17,596	985
Federal Statutes				
Opium and Narcotic Drug Act.....	78	72	51	73
Other statutes.....	1	—	2	—
Totals, Federal Statutes	79	72	53	73
Grand Totals	15,550	872	17,649	1,058

¹ Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction.

² Includes causing death in the operation of a motor vehicle or otherwise.

13.—Disposition of Sentences for Indictable Offences, by Sex, 1959 and 1960

Disposition of Sentences	1959				1960			
	16-24 Years		25 Years or Over		16-24 Years		25 Years or Over	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Suspended sentence.....	1,904	171	1,302	254	2,063	224	1,725	346
Probation.....	3,570	266	916	159	4,277	306	1,059	178
Fine.....	2,832	150	3,405	452	2,988	205	3,922	588
Gaol.....	4,685	210	5,769	279	5,528	259	6,411	299
Reformatory.....	1,459	56	521	38	1,554	52	486	33
Penitentiary.....	1,093	19	1,505	61	1,235	12	1,633	50
Death.....	7	—	9	—	4	—	6	—

Subsection 3.—Convictions for Summary Conviction Offences

Offences punishable on summary conviction are triable by magistrates and justices of the peace under Part XXIV of the Criminal Code (SC 1953-54, c. 51) or under the provincial summary conviction Acts as the case may be. Data relating to these offences are based on convictions. No information is available on either the number of persons involved in these offences or the number of charges.

14.—Convictions for Summary Conviction Offences, by Type, 1959 and 1960

Type of Offence	1959	1960	Increase or Decrease 1959-60
	No.	No.	p.c.
Criminal Code	74,716	83,198	+11.4
Attempts, conspiracies, accessories, counselling.....	77	114	+48.1
Attempt to commit suicide.....	189	207	+ 9.5
Bawdy house.....	527	599	+13.7
Causing disturbance by being drunk.....	2,849	3,602	+26.4
Common assault.....	5,874	6,418	+ 9.3
Communicating venereal disease.....	47	33	-29.8
Contempt of court.....	23	120	+421.7
Corrupting morals.....	101	87	-13.9
Cruelty to animals.....	86	64	-25.6
Damage not exceeding \$50 and other interference with property.....	3,083	3,259	+ 5.7
Disorderly conduct.....	13,400	13,886	+ 3.6
Duty of persons to provide necessities.....	1,714	1,785	+ 4.1
Duty to safeguard dangerous places.....	243	192	-21.0
Fraudulently obtaining food or lodging.....	935	972	+ 4.0
Fraudulently obtaining transportation.....	106	148	+39.6
Gaming, betting, lotteries.....	1,345	3,019	+124.5
Injuring bird or animal other than cattle.....	67	52	-22.4
Intimidation.....	267	273	+ 2.2
Motor Vehicle —			
Criminal negligence in operation of motor vehicle.....	987	841	-14.8
Driving while ability to drive is impaired.....	18,916	21,050	+11.3
Driving while disqualified.....	4,379	5,142	+17.4
Driving while intoxicated.....	1,791	2,357	+31.6
Failing to stop at scene of accident.....	3,478	3,962	+13.9
Motor vehicle equipped with smoke screen.....	38	7	-81.6
Taking motor vehicle without consent.....	1,271	1,259	- 0.9
Offensive weapons	837	1,103	+31.8
Personating peace officer.....	68	60	-11.8
Recognizance, breach of.....	1,195	1,256	+ 5.1
Vagrancy.....	6,883	7,116	+ 3.4
Other Criminal Code.....	3,940	4,215	+ 7.0
Federal Statutes	31,780	29,059	- 8.6
Customs.....	136	250	+83.8
Excise.....	733	1,004	+37.0
Fisheries.....	634	699	+10.3
Food and Drugs and Inspection and Sales.....	107	107	—
Harbour Board and Merchant Seamen's.....	377	1,587	+321.0
Income Tax.....	7,713	4,584	-43.2
Indian—			
Intoxication.....	8,700	8,379	- 3.7
Other.....	3,396	2,951	-13.1
Juvenile Delinquents—			
Adults who contribute to delinquency.....	2,603	1,832	-29.6
Incorrigibility.....	523	541	+ 3.4
Inducing child to leave home, etc.....	67	144	+114.9
Sexual immorality.....	309	158	-48.9
Lord's Day.....	63	165	+161.9
Opium and Narcotic Drug.....	66	43	-34.8
Railway.....	749	1,067	+42.5
Unemployment Insurance.....	2,897	3,392	+17.1
Weights and Measures.....	32	54	+68.8
Other federal statutes.....	2,675	2,302	-13.9
Provincial Statutes	665,920	759,168	+14.0
Children of Unmarried Parents.....	588	624	+ 6.1
Deserted Wives and Children's Maintenance.....	4,057	4,641	+14.4
Game and Fisheries.....	5,700	6,575	+15.4
Highway Traffic—			
Driving without due care and attention.....	33,820	34,470	+ 1.9
Other traffic.....	468,584	548,201	+17.0
Liquor Control—			
Intoxication.....	76,510	84,161	+10.0
Other.....	53,988	58,221	+ 7.8

14.—Convictions for Summary Conviction Offences, by Type, 1959 and 1960—concluded

Type of Offence	1959	1960	Increase or Decrease 1959-60
	No.	No.	p.c.
Provincial Statutes—concluded			
Master and Servant.....	861	1,132	+31.5
Medical, Dentistry and Pharmacy.....	144	203	+41.0
Mental Diseases.....	1,407	1,184	-15.8
Prairie and Forest Fire Prevention.....	227	171	-24.7
Protection of Children.....	2,565	2,626	+ 2.4
Public Health.....	158	185	+17.1
School Laws.....	519	348	-32.9
Other provincial statutes.....	16,792	16,426	- 2.2
Municipal By-laws.....	266,323	235,107	+14.0
Intoxication.....	17,439	13,185	-24.4
Traffic.....	153,137	182,120	+18.9
Other.....	35,747	39,802	+11.3
Prohibited Parking.....	1,570,170	1,814,008	+15.5
Totals, Convictions.....	2,548,909	2,920,540	+14.6

15.—Convictions for Breaches of Traffic Regulations, by Province, 1951-60

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	1,773	580	5,802	15,641	215,222	570,895	106,262	13,325	22,923	112,738	265	1,065,426
1952.....	2,565	765	5,109	20,358	266,835	714,810	122,647	19,749	25,693	132,123	368	1,311,022
1953.....	2,719	760	6,014	21,296	309,064	857,117	122,370	21,957	30,846	133,295	493	1,505,931
1954.....	3,048	1,214	7,040	21,804	390,701	954,749	125,346	32,666	28,690	120,281	272	1,685,811
1955.....	3,977	1,637	7,982	28,080	390,502	1,102,183	92,514	32,667	29,463	148,809	..	1,837,814
1956.....	3,454	2,199	12,167	24,964	452,882	1,285,303	42,998	48,356	45,031	210,041	342	2,127,737
1957.....	10,629	1,585	11,493	35,004	438,331	1,268,616	41,646	77,808	55,238	227,533	298	2,168,181
1958.....	9,810	1,837	14,037	37,148	451,730	1,293,958	50,942	45,777	62,708	241,298	501	2,209,746
1959.....	5,514	1,995	14,752	31,631	556,720	1,193,200	61,545	49,983	71,012	268,380	508	2,255,300
1960.....	9,241	365	16,008	41,401	630,438	1,426,722	64,629	55,401	81,878	285,553	522	2,612,158

16.—Convictions of Females for Summary Conviction Offences, by Province, 1956-60

Province or Territory	Numbers of Convictions					Percentages of Convictions of Females to Total Convictions				
	1956	1957	1958	1959	1960	1956	1957	1958	1959	1960
Newfoundland.....	487	1,054	978	621	637	7.1	6.8	6.9	6.4	4.8
Prince Edward Island....	103	72	50	68	4	2.3	1.8	1.2	1.7	0.3
Nova Scotia.....	873	506	595	640	704	3.4	2.2	2.4	2.5	2.6
New Brunswick.....	554	583	663	736	886	1.6	1.3	1.4	1.7	1.6
Quebec.....	14,133	6,021	6,677	16,113	22,806	2.9	1.2	1.3	2.7	3.3
Ontario.....	88,237	91,649	95,499	88,035	114,510	6.3	6.6	6.8	6.8	7.4
Manitoba.....	2,367	2,568	3,316	3,693	4,220	4.2	4.3	4.9	4.8	5.2
Saskatchewan.....	1,860	1,372	1,733	1,329	1,717	2.9	1.3	2.9	2.0	2.5
Alberta.....	2,218	3,391	3,438	3,425	4,098	3.1	3.8	3.5	3.3	3.4
British Columbia.....	14,144	14,711	22,599	23,455	25,755	5.7	5.5	8.1	7.6	7.9
Yukon and N.W.T.....	234	364	341	411	486	10.0	10.6	10.5	13.7	14.9
Canada.....	125,300	123,291	135,919	138,531	175,823	5.2	5.0	5.4	5.4	6.0

Subsection 4.—Appeals

Tables 17 and 18 show the disposition of appeals of accused persons, of the Crown, and of informants relating to indictable offences and offences punishable on summary conviction. These appeals include cases that were tried during 1959 as well as those tried during 1960. The results of the new trials ordered by appeal courts in 1960 will be reported for the year in which the case is disposed of.

17.—Appeals in Indictable Cases, by Province, 1960

Province or Court	Appeals Disposed of by Courts	Crown Appeal				Appeal of Accused					
		From Acquittal		From Sentence		From Conviction			From Sentence		
		Dis- missed	New Trial	Con- viction	Dis- missed	Sus- pended Sen- tence	Varied	No.	Dis- missed	Sus- pended Sen- tence	Varied
Newfoundland.....	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	3	—	—	—	—	—	—	2	1	—	—
Nova Scotia.....	6	—	—	—	—	—	—	2	—	—	2
New Brunswick.....	19	—	—	2	—	—	2	6	1	—	3
Quebec.....	9	—	—	—	—	—	—	2	—	—	2
Ontario.....	130	3	—	1	—	—	—	85	13	2	13
Manitoba.....	464	—	—	5	3	3	6	200	13	16	26
Saskatchewan.....	102	2	—	—	—	—	1	20	3	—	22
Alberta.....	156	1	—	—	4	—	—	28	8	5	45
British Columbia.....	406	3	—	—	6	—	4	47	27	9	120
Northwest Territories.....	731	3	3	—	—	—	7	221	12	19	182
Supreme Court of Canada.....	2	—	—	—	1	—	—	—	—	1	—
	8	2	—	—	—	—	2	3	1	—	—
Totals.....	2,036	14	3	8	14	3	22	516	79	57	415
									752	50	

18.—Appeals in Summary Conviction Cases, by Province, 1960

Province or Territory	Appeals Disposed of by Courts	Appeal of Informant				Appeal of Accused								
		From Acquittal		From Sentence		From Conviction				From Sentence				
		Dis-missed	New Trial	Con-viction	Dis-missed	Sus-pended Sen-tence	Varied	Dis-missed	Ac-quitted	New Trial	Sub-stituted Verdict	Dis-missed	Sus-pended Sen-tence	Varied
Newfoundland..	No. 3	No. —	—	No. —	No. —	No. —	No. —	No. 3	—	No. —	No. —	No. —	No. —	No. —
Prince Edward Island.....	39	2	—	1	1	—	—	1	4	—	18	—	—	12
Nova Scotia.....	88	17	1	5	—	—	—	41	19	1	2	1	—	1
New Brunswick.....	8	2	—	—	—	—	—	4	2	—	—	—	—	—
Quebec.....	58	1	—	—	—	—	—	38	14	—	3	1	—	1
Ontario.....	510	14	—	19	—	—	—	311	127	2	26	3	—	8
Manitoba.....	46	2	—	—	—	—	—	15	21	—	2	—	1	5
Saskatchewan.....	71	16	—	6	—	—	3	22	13	—	2	4	—	5
Alberta.....	246	27	—	7	4	—	7	88	74	—	2	7	1	29
British Columbia.....	306	13	—	17	2	—	3	146	84	—	1	27	—	13
Yukon Territory.....	10	1	—	3	—	—	—	6	—	—	—	—	—	—
Northwest Territories.....	7	—	—	—	—	—	—	—	4	—	—	—	—	3
Totals.....	1,392	95	1	58	7	—	13	675	362	3	56	43	2	77

Section 3.—Juvenile Delinquents

Juvenile Delinquent, as defined in the Juvenile Delinquents Act, means any child who violates any provision of the Criminal Code or of any federal or provincial statute, or of any by-law or ordinance of any municipality, or who is guilty of sexual immorality or any similar form of vice, or who is liable by reason of any other act to be committed to an industrial school or juvenile reformatory under the provision of any federal or provincial statute. The commission by a child of any of these acts constitutes an offence to be known as a delinquency.

The upper age limit of children brought before the juvenile courts in the provinces varies. The Act defines a child as meaning any boy or girl apparently or actually under the age of 16 years, or such other age as may be directed in any province. In Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Saskatchewan and Alberta under 16 is the official age; in Newfoundland the official age is under 17; in Quebec, Manitoba and British Columbia the official age is under 18 years. In the interests of uniformity, it has been the practice of the Dominion Bureau of Statistics to publish information about juvenile delinquents 16 years of age or over in the annual report on *Statistics of Criminal and Other Offences* and to publish data relating to those under 16 years of age in a report entitled *Juvenile Delinquents*. In 1960, 2,664 juveniles 16 and 17 years of age were found delinquent in those provinces where the upper age limit is under 17 or under 18 years of age.

Included in the statistics of juvenile delinquents are cases (alleged as well as adjudged) which were brought before the courts and dealt with formally. A case was counted separately each time a child appeared before the court for a new delinquency or delinquencies. In instances where multiple delinquencies were dealt with at one court appearance, only one delinquency—the most serious—was selected for tabulation. Delinquencies reported as informal cases by the courts were not included nor were cases of children presenting conduct problems which were not brought to court or which were dealt with by the police, social agencies, schools, or youth-serving agencies. Thus, community facilities for dealing with children's problems may have an influence on the number of cases referred to court and, therefore, an effect on the statistics of juvenile delinquents.

19.—Juveniles brought before the Courts, by Province, 1956-60

Province or Territory	1956	1957	1958	1959	1960	Percentage Change, 1959-60
	No.	No.	No.	No.	No.	
Newfoundland.....	368	319	354	274	421	+53.6
Prince Edward Island.....	48	36	26	42	35	-16.7
Nova Scotia.....	524	581	780	723	792	+ 9.5
New Brunswick.....	319	341	453	371	481	+29.6
Quebec.....	1,634	2,436	2,434	2,504	2,795	+11.6
Ontario.....	4,462	4,861	5,263	5,355	6,698	+25.1
Manitoba.....	676	792	891	754	1,212	+60.7
Saskatchewan.....	47	29	88	198	275	+38.9
Alberta.....	756	824	985	980	1,189	+21.3
British Columbia.....	1,475	1,705	1,850	2,093	2,111	+ 0.9
Yukon Territory.....	1	—	—	35	—	—
Northwest Territories.....	5	4	10	—	—	—
Canada.....	10,315	11,928	13,134	13,329	16,009	+20.1

20.—Juveniles before the Courts, Dismissed and Delinquent, 1956-60

Item	1956		1957		1958		1959		1960	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
Before the Courts.....	10,315	100.0	11,928	100.0	13,134	100.0	13,329	100.0	16,009	100.0
Dismissed.....	221	2.1	331	2.8	416	3.2	370	2.8	517	3.2
Adjourned <i>sine die</i>	1,109	10.8	1,918	16.1	1,327	10.1	1,273	9.5	1,527	9.6
Delinquent.....	8,985	87.1	9,679	81.1	11,391	86.7	11,686	87.7	13,965	87.2

21.—Percentage Change in the Number of Boys and Girls brought before the Courts, 1951-60

Year	Percentage Change from Preceding Year			Percentage Change from 1950		
	Boys' Cases	Girls' Cases	All Cases	Boys' Cases	Girls' Cases	All Cases
1951.....	+ 3.9	- 5.3	+ 3.0	+ 3.9	- 5.3	+ 3.0
1952.....	- 5.0	+ 4.5	- 4.1	- 1.3	- 1.1	- 1.3
1953.....	+ 8.3	+11.0	+ 8.5	+ 6.9	+ 9.7	+ 7.2
1954.....	- 0.6	- 4.2	- 1.0	+ 6.2	+ 5.2	+ 6.1
1955.....	+ 3.3	+25.9	+ 5.6	+ 9.7	+32.4	+12.1
1956.....	+26.9	+19.4	+26.0	+39.3	+58.1	+41.2
1957.....	+14.9	+21.0	+15.6	+60.1	+91.3	+63.3
1958.....	+10.4	+ 8.3	+10.1	+76.7	+107.1	+79.8
1959.....	+ 2.4	- 5.1	+ 1.5	+80.7	+96.6	+82.5
1960.....	+19.4	+26.0	+20.1	+115.9	+147.6	+119.2

22.—Juvenile Delinquents, by Province, 1951-60

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951....	175	52	483	261	1,180	3,024	347	64	242	815	1	6,644
1952....	215	29	356	267	628	2,889	409	81	317	877	—	6,068
1953....	196	33	443	235	773	2,975	360	49	357	952	4	6,377
1954....	218	43	440	224	678	2,945	341	59	428	956	—	6,332
1955....	254	30	390	202	1,040	3,138	401	57	535	978	—	7,025
1956....	336	48	412	311	1,184	3,945	593	44	715	1,391	6	8,955
1957....	301	35	492	324	1,351	4,051	708	26	766	1,621	4	9,679
1958....	343	25	676	431	2,229 ¹	4,108	790	85	906	1,788	10	11,391 ¹
1959....	262	42	623	355	2,410 ¹	4,199	629	182	911	2,038	35	11,686 ¹
1960....	409	35	682	460	2,692	5,364	1,019	231	1,031	2,042	—	13,965

¹ Includes 956 cases in 1958 and 35 cases in 1959 "adjourned sine die", compiled for statistical purposes as juvenile delinquents.

23.—Total Delinquent Children, by Number of Delinquent Appearances, 1960, with Number of Appearances in Previous Years

Number of Delinquent Appearances	Total Delin- quent Child- ren	Delinquent Appearances in Previous Years											
		0	1 or More	1	2	3	4	5	6	7	8	9	10+
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1 or more.....	12,331	10,130	2,201	1,208	498	221	118	57	33	15	15	10	26
1.....	11,014	9,294	1,720	988	359	167	94	43	26	11	8	7	17
2.....	1,072	700	372	186	108	40	11	7	3	4	4	2	7
3.....	193	118	75	27	19	9	8	4	4	—	3	1	—
4.....	38	14	24	4	9	5	3	3	—	—	—	—	—
5.....	10	3	2	2	—	—	1	—	—	—	—	—	2
6.....	2	1	1	—	—	—	—	—	—	—	—	—	—
7.....	2	—	2	—	1	—	1	—	—	—	—	—	—

Year	Delinquencies against the Person		Delinquencies against Property with Violence		Delinquencies against Property without Violence		Wilful and Forbidden Acts in respect of Certain Property		Forgery and Delinquencies relating to Currency		Other Delinquencies		Total Convictions	
	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population
1951.....	188	9	1,542	72	2,563	119	765	36	20	1	1,566	73	6,644	310
1952.....	172	8	1,456	65	2,496	112	633	28	25	1	1,286	58	6,068	272
1953.....	169	7	1,416	61	2,415	103	770	33	19	1	1,588	68	6,377	273
1954.....	184	7	1,444	59	2,489	102	673	28	32	1	1,510	62	6,332	259
1955.....	181	7	1,548	61	2,767	108	629	25	29	1	1,871	73	7,025	275
1956.....	250	9	1,888	69	3,572	131	839	31	39	1	2,397	88	8,985	329
1957.....	254	9	2,005	70	3,764	131	994	35	28	1	2,634	92	9,679	338
1958.....	346	12	2,268	76	4,436	148	985	33	36	1	3,320	111	11,391	381
1959.....	265	9	2,408	78	4,748	153	952	31	27	--	3,286	106	11,686	377
1960.....	369	11	2,953	92	5,694	177	1,272	40	36	1	3,641	113	13,965	434

Delinquency	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Manslaughter and murder and causing death by criminal negligence.....	1	1	2	1	—
Murder, attempt.....	—	1	—	1	—
Rape and attempt, sexual intercourse and incest.....	4	5	6	4	5
Indecent assault (male and female).....	26	63	75	66	96
Assault, causing bodily harm and danger.....	49	38	17	25	42
Common assault.....	115	115	214	127	198
Interfering with transportation facilities.....	12	1	3	3	—
Other offences against the person.....	43	30	29	38	28
Breaking and entering a place.....	1,849	1,970	2,239	2,375	2,886
Robbery and extortion.....	39	35	20	32	96
Theft and having in possession.....	3,389	3,566	4,223	4,517	5,488
False pretences and fraud and corruption.....	14	24	19	24	35
Arson.....	33	83	58	55	91
Other interference with property.....	806	911	927	897	1,181
Forgery and delinquencies relating to currency.....	39	28	36	27	36
Incorrigibility and vagrancy.....	586	633	813	776	900
Immorality.....	211	197	253	267	258
Various other delinquencies.....	1,769	1,978	2,448	2,451	2,655
Totals.....	8,985	9,679	11,391	11,686	13,965

Age Group	1959			1960		
	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
7 - 12 years.....	24.0	11.2	22.6	24.7	13.8	23.5
13 - 15 years.....	75.5	88.3	76.9	75.0	86.0	76.2
Not given.....	0.5	0.5	0.5	0.3	0.2	0.3
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0

27.—Age, Sex and School Grade of Delinquent Boys and Girls, 1960

(B=Boys; G=Girls)

Age	School Grades																Total Delinquents		
	Elementary										Second-ary		Auxili-ary		Not Given				
	1-4		5		6		7		8										
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G			
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.			
7 years.....	27	—	—	—	—	—	—	—	—	—	—	—	3	—	2	—	32	—	
8 ".....	110	7	2	—	—	—	1	—	—	—	—	—	1	—	1	—	115	7	
9 ".....	254	13	23	—	2	—	3	—	3	—	1	—	—	3	—	8	1	294	14
10 ".....	289	21	141	6	33	3	4	1	—	—	—	—	9	—	10	1	486	32	
11 ".....	303	10	236	22	207	16	50	6	2	—	2	—	12	1	15	1	827	56	
12 ".....	212	11	268	10	396	39	326	41	64	3	2	1	15	2	22	2	1,305	109	
13 ".....	135	9	266	28	511	41	757	82	448	62	83	19	26	2	36	4	2,262	247	
14 ".....	89	20	192	27	380	76	824	105	903	151	579	106	42	4	45	10	3,054	499	
15 ".....	54	9	142	23	338	42	666	103	987	157	1,624	249	43	6	122	23	3,976	612	
Not given.....	—	—	—	—	1	—	—	1	—	—	—	—	1	—	32	2	35	3	
Totals.....	1,473	100	1,270	116	1,868	217	2,631	339	2,406	373	2,290	375	155	15	293	41	12,386	1,579	

28.—Disposition of Delinquents, by Type of Sentence, 1951-60

Year	Reprimanded		Probation of Court		Protection of Parents		Fined or Made Restitution		Detained Indefinitely		Sent to Training School		Final Disposition Suspended		Corporal Punishment		Mental Hospital	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
1951.....	309	4.6	2,313	34.8	154	2.3	1,433	21.6	45	0.7	1,141	17.2	1,247	18.7	2	0.1	..	..
1952.....	243	4.0	2,412	39.8	148	2.4	1,015	16.7	1	—	1,152	19.0	1,095	18.1	2	—	..	..
1953.....	227	3.6	2,620	41.1	186	2.9	1,147	18.0	28	0.4	1,107	17.4	1,062	16.6	—	—	..	..
1954.....	199	3.1	2,595	41.0	174	2.8	1,095	17.3	27	0.4	1,121	17.7	1,119	17.7	2	—	..	..
1955.....	181	2.6	3,067	43.7	365	5.2	1,064	15.1	50	0.7	1,180	16.8	1,118	15.9	—	—	..	..
1956.....	359	4.0	3,155	35.1	404	4.5	2,015	22.4	30	0.3	1,440	16.0	1,577	17.6	—	—	5	0.1
1957.....	460	4.7	3,822	39.5	300	3.1	2,261	23.4	63	0.7	1,563	16.1	1,202	12.4	1	—	7	0.1
1958.....	504	4.4	5,728	50.3	294	2.6	1,624	14.3	13	0.1	1,822	16.0	1,389	12.2	3	—	14	0.1
1959.....	236	2.0	6,151	52.6	412	3.5	1,810	15.5	9	0.1	1,678	14.4	1,381	11.8	—	—	9	0.1
1960.....	442	3.2	7,413	53.1	518	3.7	2,289	16.4	42	0.3	1,791	12.8	1,456	10.4	—	—	14	0.1

Section 4.—Adult Correctional Institutions and Training Schools

Subsection 1.—Statistics of Correctional Institutions and Training Schools

Correctional institutions may be classified under four headings: (1) Penitentiaries—operated for adult offenders by the Federal Government in which, generally speaking, sentences of over two years are served; (2) Reformatories—operated for adult offenders by the provinces in which individual sentences of up to two years are served; (3) Common Gaols—operated for adult offenders by the provinces or counties in which sentences of up to two years can be served but in which, generally speaking, short-term sentences are served; and (4) Training Schools—operated by the provinces or private organizations under provincial charter for juvenile offenders serving indefinite terms up to the legal age for children in the particular province.

There is a limited amount of statistical information available with respect to these types of institution for the years 1956-60. "In custody" figures shown in Table 29 for penitentiaries refer only to those persons under sentence, but the figures for admissions include those received from courts as well as by transfer from other penitentiaries and by cancellation of tickets-of-leave and paroles. Figures for releases include expiry of sentences, transfers between penitentiaries, releases on ticket-of-leave and parole, deaths, pardons and releases on court order.

In custody figures for provincial and county institutions may include, in addition to those serving sentences, persons awaiting trial, on remand for sentence or psychiatric examination, awaiting appeal or deportation, any others not serving sentence and, for training school population, juveniles on placement.

Population figures in Tables 29 and 30 are for a given day of the year, which is Mar. 31 except for Quebec gaols where populations are counted as of Dec. 31. These figures represent, in effect, a yearly census of correctional institutions and as such, are not indicative of the daily average population count. For instance, if an abnormal number of commitments are made to a certain institution on or just prior to Mar. 31, the result will be an unrepresentative population total for the institution in that year.

With regard to the fluctuations that might have occurred during the year between census days, the total population of correctional institutions has shown a general increase since Mar. 31, 1956; totals for training schools and provincial adult institutions have shown a tendency to level off or decline slightly but penitentiary population has increased steadily.

29.—Population in Penitentiaries, Years Ended Mar. 31, 1956-60

Item	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
In custody at beginning of year.....	5,507	5,508	5,433	5,770	6,295
Received during year.....	3,112	2,977	3,919	3,918	4,523
Discharged during year.....	3,112	3,053	3,582	3,393	4,474
In custody at end of year.....	5,508	5,433	5,770	6,295	6,344

30.—Populations in Reformatories and Gaols and in Training Schools as at Mar. 31, 1956-60

Type of Institution	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Reformatories and Gaols—					
Reformatories for men.....	2,924	3,257	3,890	3,806	3,769
Reformatories for women.....	168	145	164	172	144
Common gaols.....	5,902	6,337	7,138	7,188	6,983
Totals, Reformatories and Gaols.....	8,994	9,739	11,192	11,166	10,896
Training Schools—					
Training schools for boys.....	1,938	2,132	2,334	2,343	2,423
Training schools for girls.....	926	998	1,086	990	965
Totals, Training Schools.....	2,864	3,130	3,420	3,333	3,388

Subsection 2.—The Penitentiary Service*

The penitentiaries of Canada are administered by the Commissioner of Penitentiaries, responsible directly to the Minister of Justice. In the year ended Mar. 31, 1962, the federal penitentiaries system consisted of six maximum security, four medium security and nine minimum security institutions, all for males; one prison for women; and two Correctional Staff Colleges.

* Prepared under the direction of A. J. MacLeod, Commissioner of Penitentiaries, Ottawa.

The six maximum security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at New Westminster, B.C., Prince Albert, Sask., Stony Mountain, Man., Kingston, Ont., St. Vincent de Paul, Que., and Dorchester, N.B. Persons sentenced to penitentiary terms in Newfoundland are held in the provincially operated institution at St. John's, under financial arrangements authorized by Sect. 14 of the Penitentiary Act (SC 1960-61, c. 53).

The four medium and the nine minimum security institutions receive inmates transferred from the maximum security (receiving) institutions on the basis of their suitability for special forms of training, including vocational training. Of the medium security institutions, two—Collin's Bay Penitentiary and Joyceville Institution—are within a few miles of Kingston. The other two—the Federal Training Centre and the Leclerc Institution—are in close proximity to St. Vincent de Paul.

Seven minimum security Correctional Camps are operated as extensions of a main institution in their respective areas. These are located at William Head and Agassiz, B.C.; Beaver Creek and Landry Crossing near Bracebridge and Petawawa, Ont.; Gatineau (Gatineau Park) and Valleyfield, Que.; and Springhill, N.S. The two minimum security Farm Camps, at St. Vincent de Paul and Collin's Bay, operate as extensions of the two penitentiaries there.

The Prison for Women at Kingston, Ont., receives inmates transferred upon committal to penitentiaries in any part of Canada. Prior to Dec. 1, 1960, it operated as a detached portion of Kingston Penitentiary.

The two Correctional Staff Colleges—one at Kingston, Ont., and one at St. Vincent de Paul, Que.—are for the advanced training of penitentiary officers. The one at Kingston serves English-speaking or bilingual officers and that at St. Vincent de Paul is primarily for French-speaking officers from all parts of Canada.

During the year ended Mar. 31, 1961, there were 6,643 inmates confined in all institutions, of whom 118 were females. This compared with an inmate population for the previous fiscal year of 6,265, of whom 117 were females. Total disbursements for 1960-61 for the administration, maintenance of inmates and capital expenditures amounted to \$18,362,862; this was offset by revenue from the sale of land, industries and farm products totalling \$1,203,522.

During the fiscal year 1962-63, there are planned to be opened five more Correctional Camps—one in the Maritime Provinces, one in Quebec, one in Ontario and two in the Prairie Provinces. In addition, four Farm Camps will be opened—one each at Dorchester Penitentiary, Joyceville Institution, Manitoba Penitentiary and Saskatchewan Penitentiary. A new and enlarged Correctional Staff College at Kingston is also planned for 1962-63 to meet the expanding training needs of English-speaking officers, and a larger Correctional Staff College at St. Vincent de Paul to serve French-speaking officers is planned for a later year. Construction will start in 1962-63 on a drug addiction treatment institution located in the lower mainland area of British Columbia. Institutions for young offenders are planned for the Maritime Provinces and Quebec and medium security institutions are scheduled for Ontario and Quebec. In the same year there will be opened, in the lower mainland of British Columbia, a separate institution for the many Sons of Freedom Sect Doukhobors (male and female) who have been sentenced to long terms of imprisonment.

Many of the recommendations of the Correctional Planning Committee, appointed by the Minister of Justice in 1958 to consider ways in which a more effective and more fully integrated Canadian correctional system could be achieved, were implemented during 1960-61. A major initial step in such implementation was the reorganization of the Penitentiary Service Headquarters into four Divisions—Inmate Training, Organization and Administration, Finance and Services, and Penitentiary Industries. Each Division is headed by a Director with ancillary staff. The Commissioner of Penitentiaries and the Deputy Commissioner of Penitentiaries are the senior members of the Service Headquar-

ters. The Penitentiary Act, 1961 and the Penitentiary Service Regulations, 1962 provide legislative authority for the reorganization. In the decentralization of many penitentiary operations from Headquarters, Regional Directorates were set up for Ontario and Quebec, effective Apr. 1, 1962, and others are scheduled for the 1963-64 fiscal year.

The trend in new institutional construction is toward smaller buildings of 400-500 capacity. Farm Camps are for 80-88 inmates and other camps of a minimum security nature have a capacity of up to 150 inmates but generally operate at the 80-inmate level.

Subsection 3.—The National Parole System*

The progressive correctional system now in operation in Canada places emphasis on reformation rather than on punishment alone for the sake of retribution to society. It is quite obvious from past experience and from the high rate of recidivism among criminals that punishing a person for wrong-doing merely by depriving him of his freedom is not effective in turning that person from crime. It is therefore considered imperative that during his period of incarceration every possible means be taken to reform the inmate through treatment and training and through assistance with his personal problems. Not only is it desirable that the individual be given such assistance and returned to freedom as a useful citizen but it is also undoubtedly preferable for society generally that he be saved from the further resentment and bitterness that would result from imprisonment without assistance. The only way the public can be properly protected is by reforming the offender. Thus the treatment and training program in the institution is a vital part of the whole correctional process and parole is an extension of that training outside the institution.

In January 1959, the National Parole Board, consisting of a chairman and three members, was formed and given absolute jurisdiction over all matters of parole. It operates under authority of the Parole Act (SC 1958, c. 38) which came into force on Feb. 15, 1959, replacing the former Ticket-of-Leave Act administered by the Remission Service of the Department of Justice. A fifth member was appointed on Oct. 1, 1960. The Board has taken over the Remission Service, and the staff of the Board, numbering 100 persons, is known as the National Parole Service.

The basic purpose of parole is to reform and rehabilitate the offender and the function of the National Parole Board is to select those inmates in the various federal and provincial penal institutions who indicate that they sincerely intend to reform, and to assist them in doing so by grant of parole. The Board is not a reviewing authority and is not concerned with the propriety of conviction or the length of sentence but only with the problem of deciding, in each case it considers, whether or not there is a reasonable chance of reformation. Parole should not be confused with clemency and is not granted on humanitarian grounds alone. It is not a matter of shortening sentence, although it has the effect of shortening the time a man spends in gaol. Parole means that an inmate is allowed to serve the remainder of his sentence at large in society but under certain restrictions that will ensure his leading a law-abiding life. These restrictions are designed for the protection of the public and for his own welfare.

The decision of the Board is based on reports it receives from the police, from the trial judge or magistrate and from various people at the institution who deal with the inmate. Reports are also obtained from a psychologist or psychiatrist, when available. Where necessary, a community investigation is conducted to secure as much information as possible about the man's family and background, his work record, and his position in the community. From all these reports, an assessment is made to determine whether or not he has changed his attitude and is likely to lead a law-abiding life. An inmate need not obtain the services of a lawyer to apply for parole. He may apply by sending a letter to the Board and is assisted in preparing such application at the institution, or another person may apply on his behalf. The Board automatically reviews all sentences of over two years. As soon as an application is received, a file is opened and investigation begun,

* Prepared by T. G. Street, Chairman, National Parole Board, Ottawa.

the results of which are presented to the Board for decision. All applications and reports are processed by the Parole Board staff at Ottawa. In addition to the headquarters staff, there are 10 Regional Officers stationed across the country. They interview all applicants for parole to give them an opportunity of making verbal representations to a representative of the Board. The Regional Officers also submit to the Board reports of interviews and their assessment of the inmates' suitability for parole. These Regional Officers have authority over the parolees in their various areas, and also give information and counsel to all inmates regarding possibility of parole and preparation for it.

A person on parole is under the care of a supervisor, usually an after-care agency worker or a probation officer, who reports to the Regional Officer. If he violates the conditions of his parole or commits further offence or misbehaves in any manner, the Board may revoke his parole and return him to the institution to serve that part of his sentence outstanding at the time his parole was granted.

The inmate coming out of an institution faces many problems in regaining his place in society. He is assisted as much as possible by the members of the Parole Service, the after-care agencies and the provincial probation officers. But the success of the parole system depends on the public's understanding of the purpose of parole and its sympathy toward the problems of the ex-inmate. If he is unable to get a job or form new associations because of his past, the chances of his being rehabilitated are remote. However, with the increasing efficiency of the system, with greater co-operation and understanding among all people involved in the correction system and with the public generally, recidivism in Canada should be lessened and some of the problems of criminality solved.

In the first 35 months of operation (to Nov. 30, 1961) the Parole Board reviewed 21,400 cases, including applications for parole and automatic parole review, and granted 6,405 paroles. During the same period, the Board revoked 512 paroles, which is a failure rate of about 8 p.c. related to the number of paroles granted.

Section 5.—Police Forces

The Police Forces of Canada are organized under three groups: (1) the Federal Force, which is the Royal Canadian Mounted Police; (2) Provincial Police Forces—the Provinces of Ontario and Quebec have organized Provincial Police Forces, all other provinces engage the services of the Royal Canadian Mounted Police to perform parallel functions within their borders; and (3) Municipal Police Forces—each urban centre of reasonable size maintains its own police force, or engages the services of the provincial police under contract, to attend to police matters within its boundaries.

A new method of reporting police statistics, known as the Uniform Crime Reporting System, commenced on Jan. 1, 1962. The system was developed by the Dominion Bureau of Statistics in co-operation with the Canadian Association of Chiefs of Police, working through their committee on the Uniform Recording of Police Activities. The Uniform Crime Reporting System will allow for the eventual publication of more complete and meaningful data. For this reason police statistics are not carried in this edition of the Year Book.

Subsection 1.—The Royal Canadian Mounted Police

The Royal Canadian Mounted Police is a civil force maintained by the Federal Government and was established in 1873 as the North-West Mounted Police for service in what was then the North-West Territories. In recognition of its services, it was granted the use of the prefix "Royal" by King Edward VII in 1904. Its sphere of operations was expanded in 1918 to include all of Canada west of Port Arthur and Fort William and in 1920 it absorbed the Dominion Police, its headquarters was transferred from Regina to Ottawa and its title was changed to Royal Canadian Mounted Police.

The Force is under the control of the Minister of Justice and is headed by a Commissioner who holds the rank and status of a Deputy Minister. Officers are commissioned by the Crown and are selected from the non-commissioned ranks. The Force has complete jurisdiction in the enforcement of the federal statutes. By arrangement between the federal and provincial governments it enforces the provincial statutes and the Criminal Code in all provinces exclusive of Ontario and Quebec and under special agreement it polices some 119 municipalities. It is the sole police force in the Yukon and Northwest Territories, where it also performs various administrative duties on behalf of certain departments of the Federal Government. It maintains liaison officers in London and Washington and represents Canada in the International Criminal Police Organization which has headquarters in Paris.

Of the Force's 17 divisions, 12 are actively engaged in the work of law enforcement, as are some 41 subdivisions and 639 detachments. The five remaining divisions are "Headquarters", "Depot" and "N", which are maintained as training centres, and "Marine" and "Air", which support the operations of the land divisions. A teletype system links the widespread divisional headquarters with the administrative centre at Ottawa and a network of fixed and mobile radio units operates within the provinces. Focal point of the Force's criminal identification work is the Headquarters Identification Branch; its services, together with those of the 39 divisional and subdivisional units and the three Crime Detection Laboratories, are available to police forces throughout Canada. The Force operates the Canadian Police College at which Force members and selected representatives of other Canadian and foreign police forces may study the latest advances in the fields of crime prevention and detection.

The uniform strength of the Force at Mar. 31, 1961 was 6,140, including Marine Constables and Special Constables, at which time it maintained some 1,691 motor vehicles, 17 aircraft, 73 ships and boats, 215 sleigh dogs, 33 police service dogs and 231 horses.

Subsection 2.—Provincial Police Forces

Quebec Provincial Police Force.—This Force is responsible for the maintenance of peace, order and public safety throughout the Province of Quebec and also for the prevention and investigation of criminal offences and of violations of the laws of that province. Headquarters of the Force is located at Montreal.

To facilitate operations, the territory is divided into two parts designated as the Montreal Division and the Quebec Division, each of which is divided into three subdivisions. The subdivisions of the Montreal Division are administered from Montreal, Hull and Granby and the subdivisions of the Quebec Division from Quebec City, Rimouski and Chicoutimi. There are 59 detachments in the Montreal Division and 51 in the Quebec Division.

The Quebec Provincial Police Force has a complement of about 1,600 men under the orders of a Director General who is responsible to the Attorney General of the province. The personnel consists of the Director General; a Deputy Director General; two Assistant Directors, each having charge of a Division; officers holding the position of chief inspector or inspector; non-commissioned officers with the rank of sergeant-major, staff-sergeant, sergeant or corporal; and constables and recruits.

Ontario Provincial Police.—The Ontario Provincial Police Force is maintained by the Ontario Government and administered by the Attorney-General's Department. It is responsible for law enforcement in the rural and unorganized parts of the province and in certain municipalities by contract. The development of the Force from its beginning in the early years of Confederation to the passing of the Police Act in 1946, is outlined in the 1950 Year Book, pp. 332-333.

The Force, with a strength of approximately 1,945, consists of General Headquarters at Toronto and 17 District Headquarters located at Chatham, London, Burlington, Niagara Falls, Toronto, Mount Forest, Barrie, Peterborough, Belleville, Perth, Long Sault, North Bay, Sudbury, Sault Ste. Marie, Timmins, Port Arthur and Kenora. Each District has detachments adequate to meet local law-enforcement requirements. A Criminal Investigation Branch, under the command of an Assistant Commissioner, is maintained at Toronto to handle crimes of a major nature.

The Force operates one of the largest frequency modulation radio networks in the world, which is a most efficient method of combating every type of lawlessness. The network includes 74 fixed stations: one 300-watt; eighteen 250-watt, one of which is dual-controlled; one 100-watt; two 75-watt; three 40-watt; and forty-nine 60-watt. It also includes 640 radio-equipped mobile units including five of the launches operating on Lake Temagami, Lake Simcoe, Lake Nipissing, Lake of the Woods and Georgian Bay.

In 1961, the Ontario Provincial Police Force policed 46 municipalities which requested this service under the provisions of the Police Act.

CHAPTER IX.—AGRICULTURE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Agriculture in Canada, though no longer supreme among the primary industries, is of major importance to the economy of the country as a whole and is still basic to many areas. The area of occupied farm land of 271,756 sq. miles (1956) amounts to only 10.7 p.c. of the total area of the provinces and has shown little increase during the past two decades, but cultivation in this static area has become greatly intensified, producing most of the food products required by a rapidly increasing population and providing surpluses of wheat and other grains, wheat flour, livestock, fruits and vegetables and of many prepared and manufactured agricultural products for world markets. The agricultural economy has been undergoing continual change ever since the pioneer farmer first began to produce more than his requirements and to desire products other than those produced on his own land, but that change has now become extremely marked. The evolution in farming practice under the impact of technological and scientific advances, its commercialization and the development of its greater interdependence on other branches of the economy are outlined in the following special article. Other articles that have appeared in previous Year Books dealing with the historical development of agriculture and with significant features of that progress are listed in Chapter XXVI under the heading "Special Material Published in Former Editions of the Year Book".

RECENT CHANGES IN CANADIAN AGRICULTURE*

Canada's great industrial growth and increasing population are leading to vigorous expansion in the domestic demand for agricultural products, and thus to a continuing increase in output. However, the productive capacity of the farm has also advanced so rapidly that this necessary increase in output is being achieved despite a decline in the number of people employed in agriculture. In 1941, of a total employed civilian labour force of 4,200,000 people, 1,200,000 or 28.6 p.c. were engaged in agricultural pursuits. In 1961 the total labour force had risen to 6,518,000 people but the agricultural labour force had declined to 674,000 or to 10.3 p.c. of the total.

* Prepared under the direction of S. C. Barry, Deputy Minister of Agriculture, Ottawa.

Such a shift toward industrial employment is characteristic of expanding economies where more rapid growth in productive resources and income than in population leads to a less rapid increase in demand for food than for manufactured products. The Canadian farmer, like his counterpart in other advanced countries, is faced with a scarcity of farm labour and must pay higher wages to attract or retain the needed farm help. He finds a cure for this difficulty in larger scale farming and in greater reliance on machine power than on farm labour. In other days, when large areas of good land were still available for settlement, increased output would have been achieved by an increase in the number of farms. But today it generally means an increase in the size of existing farms and a decrease in opportunities to become a farm operator. The number of farms declined steadily from 728,623 in 1931 to 575,015 in 1956 but the average size of farm increased from 224 acres to 302 in the same period. The actual increase in size of farm is really more pronounced than is indicated by these figures because the average size is held down by an increased number of specialized poultry and tobacco farms and market gardens which require only a small acreage for operation.

Farm mechanization has been the most important contributor to increased productivity and lower costs per unit of output. The quickening of the tempo of mechanization is clearly illustrated by the rise in sales of farm implements and equipment from \$47,700,000 in 1940 and \$64,300,000 in 1945 to a peak of \$250,000,000 in 1952 and a still high level of \$217,000,000 in 1960. However recourse to mechanization is only one indicator of the Canadian farmer's desire to derive full advantage from new techniques and experimental research. He keeps abreast of the findings made by the Research Branch of the federal Department of Agriculture and other agricultural research agencies, knowing full well that research in soil fertility and utilization, the development of improved breeds and strains of animals and plants and the finding of better methods of coping with pests, diseases and other threats to animals and plants are all designed to increase his output and bring larger returns. The increasing use of commercial fertilizers and pesticides are two examples, among many, of the use of more efficient techniques or methods in farming. Sales of commercial fertilizers to farmers rose from 212,479 tons in 1935 to 819,803 tons in 1953, to 870,539 tons in 1958 and to 935,428 tons in 1960. Sales of pesticides rose from a low value of \$5,400,000 in 1947 to a peak of \$20,200,000 in 1956 and since then have been maintained at a high level.

The availability and use of electricity is another factor that has contributed at least indirectly to increased productivity. It has made a tremendous change in farm life, lessening the harshness and tediousness of farm chores and giving the farm home all the conveniences of the city home. In 1931, only 10.1 p.e. of Canada's 728,623 farms had electric power; 20 years later 51.3 p.e. of the 623,091 farms and in 1956 as much as 73.5 p.e. of the 575,015 farms enjoyed the use of electric power. There was great variation in farm electrification among the provinces in 1951. Newfoundland, Prince Edward Island and the Prairie Provinces had by far the lowest proportions of farms with electric power. Changes from 1951 to 1956 were slight in Newfoundland where 38.1 p.e. of the farms in 1951 and 44.4 p.e. in 1956 had electricity, but were quite sharp in Prince Edward Island from 22.0 p.e. to 39.7 p.e., in Manitoba from 48.1 p.e. to 84.3 p.e., in Saskatchewan from 16.3 p.e. to 42.3 p.e. and in Alberta from 24.6 p.e. to 51.5 p.e. The over-all increase for the three Prairie Provinces was from 25.8 p.e. to 54.4 p.e. In the other provinces, the proportions in 1951 ranged from 60.3 p.e. in New Brunswick to 73.8 p.e. in Ontario and by 1956, 89.1 p.e. of the farms in Ontario, 88.6 p.e. of the farms in Nova Scotia, 88.1 p.e. of those in Quebec, 87.4 p.e. of those in New Brunswick and 81.9 p.e. of those in British Columbia were electrically operated.

Changes in size and type of demand for farm products, technical and managerial innovations on the farm, the enlargement of urban centres and the entry of industry into rural areas are all factors conducive to changes in land use. The most obvious is the transfer of land from farm to non-farm uses. The construction of highways and airports and the spreading out of residential and industrial areas have cut into the formerly cultivated land close to most urban centres. The extent of the loss from such developments

is not exactly known but there is no doubt that it is of great concern in certain localities. There are other changes in land use that are also of significance, such as the much more intensified use of agricultural land for agricultural production and trends in type of product. For a country the size of Canada, with such varying climates and such a wide variety of types of farming, the patterns and changes in farm land use are equally varied and almost impossible to describe in detail. However, a comparison of the relative contributions of grain crops and of livestock and livestock products to total farm cash income gives a general indication of the changes taking place during the past quarter-century. Livestock's share has increased almost steadily from 43.4 p.c. of the total in the period 1926-30 to 56.5 p.c. in 1941-45 and 59.8 p.c. in 1956-60. Grain crops, on the other hand, have declined almost steadily from 54.0 p.c. of the total in 1926-30 to 39.5 p.c. in 1941-45 and 37.2 p.c. in 1956-60.

Greater productivity and greater demand for farm products generally have led to a rise in the value of farm land, and the modernization of farms together with the larger size of farm enterprises obviously have been accompanied by a rise in the value of capital invested in land, buildings, machinery and livestock. For Canada as a whole, capital invested in the farm business has risen from \$5,600,000,000 in 1945 to \$11,600,000,000 in 1960—investment in land and buildings has risen from \$3,700,000,000 to \$7,400,000,000; investment in machinery from \$827,000,000 to \$2,200,000,000; and investment in livestock from \$1,000,000,000 to \$1,900,000,000.

Farmers in most areas sell their products in their original form to a nearby local assembler and usually transport them to a local market. The general pattern is to specialize in the production of one or two commodities and to sell to firms that specialize in the processing or marketing of these commodities. The extent to which this pattern is established varies by commodity. The wheat producer of the Prairie Provinces has long delivered his wheat to the country elevator—the practice of taking grain to a local mill for conversion into flour had virtually disappeared twenty years ago. Farmers and city people alike buy baker's bread. Feed grains are fed to a considerable extent on the farm where they are produced. Nevertheless, many livestock farmers in Central and Eastern Canada now purchase most of their feed requirements. In these parts of Canada, there has been a long-term trend toward dependence on ready-mixed feeds, especially for poultry and hogs.

Associated with this trend has been the emergence of vertical integration and contract farming in livestock production, a trend that has probably developed farthest in the production of broilers. Producer, hatcheryman, feed dealer, processor and retailer may all be integrated through a series of contracts. Under these arrangements the farmer is supplied with both feed and chicks. He feeds the chicks according to the instructions of the feed dealer and ships out the broilers at the designated time. He usually buys chicks and feed on credit and is more or less guaranteed a fixed sum per broiler, over these costs, when the chickens are marketed. The producer makes his management decision when he signs the production contract and then works under the direction of others. The advantage of such operation is that it permits the planning of a steady flow of output for hatcheries and processing plants and establishes a steady dependable market for the feed dealer and a source of continuous supply for the retailer, all of which contributes to high production efficiency and low production costs. On the other hand, under this form of operation farmers lose some of their traditional independence and mass production under contract arrangements sometimes leads to over-production. However, regardless of these advantages or disadvantages, such integrated arrangements have become the prevailing plan in the production of chicken and turkey broilers, and are found to a smaller extent in the production of eggs, heavy turkeys and hogs. It is difficult to forecast whether integration of production and marketing will proceed as far with these commodities as with broilers but there were evidences of a strong trend in this direction before the institution of the deficiency-payment method of price support; these payments are available for only a limited amount of production from each farm.

With respect to beef cattle, the trend appears to be for a separation of the calf production and finishing functions, and markets for feeder cattle are well established. Another marked trend has been for an increasing proportion of slaughter steers to be well finished. Good and choice carcasses increased from 17 p.c. to 52 p.c. of all cattle slaughtered in inspected plants between 1950 and 1961. Total meat consumption per person increased from 127.1 lb. to 147.6 lb. in that period, beef accounting for almost all the increase although there was also some advance in lamb and canned meats. Meat prices relative to income levels declined during the period.

Probably the most important trend in fluid milk marketing in recent years has been the replacement of the milk can with the bulk tank. While this has made possible the provision of higher quality fluid milk, especially in hot weather, it has impaired the competitive position of the small-scale fluid milk shipper. There has also been a trend for city dairies to supply small town and village markets at a considerable distance from the dairy. Milk is shipped in cartons several hundred miles and in some provinces local dairies serving small towns have virtually disappeared.

Total consumption of fats per person has remained fairly stable in recent years but there has been a definite trend toward the consumption of less fat in dairy products. Butter consumption per person declined from 20.5 lb. in 1956 to 16.9 lb. in 1960 and there are indications of a further drop of one pound per person in 1961. Fluid whole milk also showed a slight downward trend in consumption during this period. In part, 2-p.c. milk was substituted for whole milk and the consumption of skimmed milk powder increased from 5.1 lb. per person in 1956 to 6.6 lb. in 1960.

In the fruit and vegetable field, probably the most significant development of the past decade has been the expansion of demand for frozen foods. Consumption of frozen fruits packed in consumer packages increased sixfold, on a per capita basis, between 1951 and 1960 and that of frozen vegetables about threefold. At the same time there has been a marked upward trend in the consumption of fruit juice, especially frozen concentrated, and of vegetable juice. Consumption trends for the canned and dried products have been less pronounced except when new products such as instant mashed potatoes have been introduced.

Of significance to the food producer is the trend toward complete integration of wholesaling and retailing functions for many food commodities by corporate chain store organizations. They buy directly from processors, assemblers or sometimes producers. Their share of the Canadian retail food business has increased from 32 p.c. in 1951 to over 45 p.c. in 1961. Meanwhile, the growth of voluntary chains, which effect a somewhat similar integration through contracts, has been almost phenomenal. Their share of the food business increased from 5 p.c. in 1951 to over 25 p.c. in 1961.* Associated with the development of chains, corporate and voluntary, has been the growth of self-service retailing, and associated with the trend toward self-service retailing has been the very greatly increased use of packaging. Many other developments appear to be on the horizon in food marketing. Food discount houses and 'bantam' supermarkets are being built. Vending machines may perform an important role in food distribution in the future. Techniques have been developed for the tenderization of beef before it is sold, and tenderized beef is being market-tested. New or improved processed food products and prepared foods appear on the market quite frequently.

Over the past decade consumers have tended to spend about 23 p.c. of their disposable income on food and agricultural products. With increasing incomes there has been a shift to more expensive foods and associated services. If consumers in 1960 had purchased the same basket of food as they did in 1949 it would have taken only 20 p.c. of their incomes. During the period 1953-60 the farm value as a percentage of the retail value declined from 50 p.c. to about 43 p.c. This decrease in the farm share does not indicate the relative profit or loss to the farmer but rather is largely the result of increasing expenditures for assembly, processing and distribution and the addition of extra services.

* Figures are based on unofficial estimates published in trade journals.

Section 1.—Federal Government in Relation to Agriculture*

The federal Department of Agriculture dates from Confederation. It was established in 1867 as an outgrowth of a Bureau of Agriculture set up in 1852 by an Act of the Legislature of the Province of Canada. The Department derives its authority from the British North America Act, 1867, which states in part that "in each province, the legislature may make laws in relation to agriculture in the province" and that "the Parliament of Canada may from time to time make laws in relation to agriculture in all or any of the provinces; and any law of the legislature of a province relative to agriculture, shall have effect in and for the province as long and as far as it is not repugnant to any Act of the Parliament of Canada".

A Department of Agriculture with a Minister of Agriculture at its head was accordingly established as part of the Government of Canada. Departments of Agriculture headed by provincial Ministers of Agriculture were also set up by the provincial governments, except in the Province of Newfoundland where agricultural affairs are dealt with by the Agricultural Division of the Department of Mines, Agriculture and Resources. The agricultural affairs of the Yukon and Northwest Territories are administered for the Federal Government by the Territorial Division, Northern Administration Branch, Department of Northern Affairs and National Resources.

Subsection 1.—Services of the Department of Agriculture

Broadly speaking, the activities of the Department of Agriculture may be grouped under three headings: research, promotional and regulatory services, and assistance programs. Research work is aimed at the solution of practical farm problems through the application of fundamental scientific research to all aspects of soil management and crop and animal production. Promotional and regulatory services are directed toward the prevention or eradication of crop and livestock pests, the inspection and grading of agricultural products and the establishment of sound policies for crop and livestock improvement. Assistance programs cover the sphere of soil and water conservation, price stability, provision of credit, rural rehabilitation and development and a degree of crop insurance and income security in the event of crop failure. The Department employs a staff of more than 10,000 persons.

The organization of the Department comprises three branches—Research, Production and Marketing, and Administration. Other activities closely allied with the Department and responsible to the Minister of Agriculture are those of the Farm Credit Corporation, the Board of Grain Commissioners and the Canadian Wheat Board (see p. 384 and Index).

Research Branch.—The Research Branch is the principal research agency of the Department. It conducts a broad program of scientific investigation covering both basic studies and practical attacks on agricultural problems. There are seven Research Institutes at Ottawa; two Research Institutes, nine Regional Research Stations, six Research Laboratories, 23 Experimental Farms, two Forest Nursery Stations and 20 Substations are located throughout the ten provinces and the Yukon and Northwest Territories.

The Research Branch serves all principal agricultural areas in Canada and co-ordinates its efforts with those of the National Research Council, universities and kindred agencies. One staff group is charged with the planning and co-ordination of the program and another with the administration required to carry it out. Four directors, representing divisions of animals, crops, soils, entomology and plant pathology, assist the programming of the work. Three research services—statistics, engineering, and analytical chemistry, located with the administrative and executive group at Ottawa—provide research groups across the country with specialized leadership and service and undertake critical researches or other creative work as required.

* Prepared under the direction of S. C. Barry, Deputy Minister of Agriculture, Ottawa.

The Research Institutes are organized on a scientific rather than a problem basis and are engaged primarily on basic research of wide application to agriculture. They also carry out related national work such as the identification of plants, insects and pathogens. There are seven Institutes at Ottawa and one each at London and Belleville in Ontario.

The *Animal Research Institute* covers the fields of genetics and breeding, nutrition, physiology, biochemistry and management, and tackles problems in the production of milk, beef, lamb, pork, poultry, eggs and fur. Plant studies are carried out at the *Plant Research Institute* in taxonomy, physiology, biochemistry, pathology, agrometeorology, weeds, and fruit and vegetable processing and storage. Cytological and genetic studies on cereal, forage, tobacco and horticultural plants are made by the *Genetics and Plant Breeding Research Institute* with special reference to problems encountered in the breeding programs and the assessment of quality characteristics. The *Soils Research Institute* studies genesis and classification, fertility, mineralogy and the organic, physiochemical and physical aspects of soils. This Institute gives leadership to the federal-provincial soil survey program through classification studies and by developing and standardizing analytical methods. It also provides a national soil-mapping service. A major section of the *Entomological Research Institute* deals with taxonomy, other assignments being in the fields of genetics, physiology, nematology and apiculture. The Institute assembles and maintains the national collection of insects. The *Microbiological Research Institute* is mainly concerned with metabolism, nutrition and genetics of bacteria of agricultural significance. The *Food Research Institute* conducts basic research on the characteristics of plant and animal products affecting food quality. The development of new principles of food processing and studies related to dairy technology are of major interest.

The *Pesticide Research Institute* at London examines chemicals used or intended to be used for insect, disease or weed control and investigates the reason for and the nature of the biological activity of the chemical. The *Biological Control Research Institute* at Belleville is concerned with efforts to control destructive insect pests and noxious weeds with parasitic and predaceous insects, and with insect disease organisms. It is also the principal importing centre for beneficial insects and for some disease organisms from foreign countries.

The Regional Research Stations and Laboratories cope with primary problems in various regions in all provinces. Other units have undertaken projects assisting in the exploitation of peat bogs, reclamation of marshland for pasture, propagation of shelter-belt trees and prevention of soil erosion, dryland agriculture, the growing of special crops such as tobacco, and livestock breeding.

Production and Marketing Branch.—The Production and Marketing Branch conducts the promotional and regulatory functions of the Department. Its seven Divisions administer legislation and policies in the fields of agricultural production, marketing and control of disease in plants and animals. Three Sections—Markets Information, Consumer, and Transportation, Storage and Retail Inspection—carry on activities in their respective fields.

The *Health of Animals Division* administers the Animal Contagious Diseases Act, the Humane Slaughter of Food Animals Act and the Meat Inspection Act. The Division also operates laboratories for the study of animal diseases. Besides its responsibility in carrying out various disease prevention measures, the Division conducts programs for the eradication of bovine tuberculosis and brucellosis and issues health certificates for livestock entering export trade. The animal pathology laboratories, in addition to their research function, manufacture diagnostic reagents and biological products and provide analytical and diagnostic services for diseases of domestic and wild animals. District laboratories across the country give routine diagnostic and research services. The *Livestock Division* administers legislation dealing with the grading of meat, wool and fur, with the registration of livestock pedigrees, with performance testing of cattle and hogs and with the supervision of racetrack betting. Other activities include the promotion of livestock improve-

ment and the compilation of market statistics. The *Poultry Division* carries out the policies of the national poultry breeding program, including Record of Performance for poultry and hatchery inspection, and administers the regulations for the grading of poultry products.

The *Fruit and Vegetable Division* administers legislation having to do with the grading of fruits and vegetables in both fresh and processed form, maple products and honey. The Division is responsible for the licensing of interprovincial and international brokers who deal in fresh fruits and vegetables. The *Dairy Products Division* is responsible for the administration of legislation covering grades and standards for dairy products, including butter, cheese, concentrated milk products and ice cream. The *Plant Products Division* administers Acts and regulations respecting seeds, feedstuffs, fertilizers and pest-control products, conducts field inspections and maintains regional testing laboratories. The *Plant Protection Division* is responsible, under the Destructive Insect and Pest Act, for safeguarding against the introduction of serious plant insects or diseases into Canada or their spread in Canada; for certifying freedom from disease and pests in plant exports, and for seed potato certification.

The *Markets Information Section* compiles and distributes market information respecting livestock, meats and wool, dairy products, eggs and poultry, and fruits and vegetables. The *Consumer Section* helps to promote proper use of Canadian agricultural food products through experimental work, carried on by its home economists, on the cooking of foods and the preserving of perishables. The *Transportation, Storage and Retail Inspection Section* administers the payment of subsidies for the construction of public cold storage facilities. Cargo inspectors at the main Canadian ports check the handling of goods moving to export. Other inspectors in the principal marketing areas make spot checks on retail outlets to see that food products meet the prescribed standards of quality and grade.

Administration Branch.—In addition to its general responsibility for the business management of the Department, the Administration Branch embraces the Divisions concerned with Economics and Information. Administration of the rehabilitation and assistance programs is also associated with this Branch.

The *Economics Division* collects, analyses and interprets economic information required to form and administer departmental policies and programs. It conducts economic surveys and research designed to improve agricultural production, marketing, and farm living conditions. The Division acts as an economic and statistical research agency for the Agricultural Stabilization Board, the Prairie Farm Rehabilitation Administration and other bodies, assisting in any economic undertaking with which the Department is concerned.

The *Information Division* gathers and publishes information arising from research work and the development and regulatory programs of the Department. It employs all the recognized media—printed publications, press and radio releases, motion pictures and television. In addition, the Division operates the central library of the Department and a system of field libraries located at major research centres of the Department across Canada.

Subsection 2.—Farm Assistance Programs

Basic to the concept of Canada's national agricultural policy is the premise that a stable agriculture is in the interests of the national economy and that farmers as a group are entitled to a fair share of the national income. In pursuit of these objectives, the Department of Agriculture has carried on, over a long period, a program designed to aid agriculture through the application of scientific research and the encouragement of improved methods of production and marketing. Over the years, as conditions have warranted, programs have been initiated to deal with special situations such as the Prairie Farm Rehabilitation Act (see p. 399) to deal with the results of the drought in the 1930's; the Prairie Farm Assistance Act (p. 387) to mitigate the effects of crop failure; and the Maritime Marshland Rehabilitation Act (p. 403) to save valuable soil in the Maritime Provinces.

Although much has been accomplished by these measures, changing conditions have dictated the need for a new approach. In the past two decades agriculture has undergone revolutionary changes. Large-scale mechanization, increasing farm size coupled with declining farm numbers, and shrinking world markets have called for a reappraisal of policy, resulting in a number of recent legislative enactments in the agricultural field. These cover such matters as credit provision, price stability, crop insurance and resource development; they are described individually below. In addition, legislation has been passed from time to time giving assistance to meet temporary or short-term contingencies, such as the Western Grain Producers' Acreage Payment Regulations which, following the drought in 1957, provided for the payment to each grain producer of \$1 for each acre seeded in 1958 up to an amount of \$200; and the Prairie Grain Loans Act which provided for short-term credit to grain producers of the Prairie Provinces to meet temporary difficulties encountered during the 1959-60 crop year from inability to thresh their grain.

The Farm Credit Act.*—The object of the Farm Credit Act (SC 1959, c. 43, proclaimed Oct. 5, 1959), to be effected by the Farm Credit Corporation, is to assist Canadian farmers in the voluntary reorganization of their industry into economic family farm units, each of which will be of sufficient size to produce the farm income necessary to pay all operating and maintenance costs; to provide an adequate livelihood for the owner-operator and his dependants; and to retire any required credit, with interest, within an appropriate term.

The Act provides two types of long-term mortgage loans. Under Part II of the Act, the Corporation may lend up to 75 p.c. of the appraised value of the farm land taken as security, or \$20,000, whichever is the lesser, repayable within a period of up to 30 years. Under Part III of the Act, the Corporation is empowered to make loans of up to 75 p.c. of the value of the farm land and chattels taken as security, or \$27,500, whichever is the lesser, to young farmers aged 21 to 44, inclusive, who have at least five years of experience in farming; that portion of the loan secured by farm land is repayable within a period of up to 30 years and that portion (if any) based on chattel security must be repaid within the first ten years. A Part III loan is further secured by mandatory insurance upon the life of the borrower, and his farming operations are subject to supervision by the Corporation until the loan has been reduced to 65 p.c. of the appraised value of the farm land. Similar insurance coverage is available to Part II borrowers on an optional basis. The interest rate on all loans is fixed by the Act at 5 p.c.

The Corporation, in co-operation with the Veterans' Land Act Administration, has established 198 local federal Farm Credit offices in agricultural communities throughout the country, each served by a resident Farm Credit Adviser. The Credit Advisers are available to advise and assist local farmers in estimating their credit needs, in planning farm operations, and in making constructive loan applications based on the careful appraisal of agricultural productivity, and to provide counsel and supervision to borrowers.

Funds for lending are borrowed at current interest rates from the Minister of Finance. The aggregate amount of such borrowings at any time outstanding may not exceed 25 times the capital of the Corporation, which has been fixed by the Act at \$12,000,000.

In the year ended Mar. 31, 1961, the Farm Credit Corporation approved 5,597 loans for a total of \$60,704,050 as compared with 5,339 loans for a total of \$40,031,250 in the preceding year; the total amount of principal outstanding on loans was \$158,447,392 as compared with \$117,233,247 the previous year. The 1961 amount was secured by 31,054 first mortgages and 213 second mortgages.

* This Act repealed the Canadian Farm Loan Act, 1927.

1.—Loans Approved and Disbursed under the Canadian Farm Loan Act¹ and the Farm Credit Act, Years Ended Mar. 31, 1952-61

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year Ended Mar. 31—	Loans Approved					Loans Paid Out		
	First Mortgage		Second Mortgage		Total Amount	First Mortgage	Second Mortgage	Total Amount
	No.	Amount	No.	Amount				
		\$		\$	\$	\$	\$	\$
1952.....	1,437	3,929,500	494	308,900	4,238,400	4,131,141	337,951	4,469,092
1953.....	1,685	5,458,750	559	393,550	5,852,300	4,766,149	342,410	5,108,559
1954.....	2,091	7,366,800	591	449,950	7,816,750	6,606,323	394,216	7,000,539
1955.....	2,145	7,902,100	395	323,400	8,225,500	7,849,663	357,339	8,207,002
1956.....	2,057	8,126,900	204	182,750	8,309,650	8,038,877	215,445	8,254,322
1957.....	2,921	13,978,700	—	—	13,978,700	13,154,066	29,926	13,183,992
1958.....	3,702	21,278,450	—	—	21,278,450	19,343,560	—	19,343,560
1959.....	4,805	30,144,950	—	—	30,144,950	28,368,239	26	28,368,265
1960.....	5,339	40,031,250	—	—	40,031,250	35,840,882	—	35,840,882
1961.....	5,597	60,704,050	—	—	60,704,050	52,305,265	—	52,305,265

¹ Repealed by the Farm Credit Act, proclaimed Oct. 5, 1959.

2.—First Mortgage Loans Approved under the Canadian Farm Loan Act¹ and the Farm Credit Act, by Province, Years Ended Mar. 31, 1959-61

NOTE.—Figures for earlier years are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Province	1959		1960		1961	
	No.	\$	No.	\$	No.	\$
Prince Edward Island.....	150	567,800	125	518,950	90	598,000
Nova Scotia.....	49	219,450	43	260,700	20	264,500
New Brunswick.....	71	303,650	39	250,350	46	362,050
Quebec.....	154	891,650	179	1,286,450	106	1,646,550
Ontario.....	1,299	10,702,350	1,384	13,164,750	1,590	19,151,700
Manitoba.....	454	2,505,600	251	1,498,750	317	3,481,300
Saskatchewan.....	1,510	8,665,550	1,739	12,582,600	2,008	19,014,550
Alberta.....	961	5,125,100	1,421	9,024,800	1,217	13,182,600
British Columbia.....	157	1,163,800	153	1,443,900	203	3,002,800
Totals.....	4,805	30,144,950	5,339	40,031,250	5,597	60,704,050

¹ Repealed by the Farm Credit Act, proclaimed Oct. 5, 1959.

The Farm Improvement Loans Act.—The Farm Improvement Loans Act (RSC 1952, c. 110), administered by the Department of Finance, is designed to provide credit by way of loans made by the chartered banks to assist in almost every conceivable purchase or project for the improvement or development of a farm and includes the purchase of agricultural implements, the purchase of livestock, the purchase and installation of agricultural equipment or a farm electric system, the erection or construction of fencing or works for drainage on a farm, and the construction, repair or alteration of farm buildings including the family dwelling. Credit is provided on security related to the purchase or project and on terms suited to the individual borrower.

The legislation, originally operative for three years (1945-48), has been continuous by way of extensions usually for three-year periods. The latest extension was for the period commencing Apr. 1, 1959 and ending June 30, 1962. Under that extension, full-time beekeepers are made eligible for loans and the maximum loan or amount available at any one time to a borrower is increased from \$5,000 to \$7,500. The maximum term of a loan and the interest rate remain at ten years and 5 p.c. simple interest, respectively.

The borrower is required to provide from 10 p.c. to 40 p.c. of the cost of his purchase or project, depending on the loan category to which it belongs. The Federal Government guarantees each bank against loss sustained by it up to an amount equal to 10 p.c. of loans granted by it in a lending period. This guarantee does not apply to any loan made after the aggregate of all loans made by all banks in a given period reaches an amount fixed by statute. The current maximum stands at \$400,000,000. By Dec. 31, 1960, 1,752 claims amounting to \$1,192,594 had been paid under the guarantee since the inception of the Act, representing a net loss ratio of less than one-tenth of one per cent after recoveries have been taken into account.

By the end of 1960, \$836,245,952 or 82.4 p.c. of the total loans made had been repaid. The position at that time was as follows:—

<i>Period</i>	<i>Loans Outstanding</i>	<i>P.C. of Total Loans Outstanding</i>
	\$	
1945-48.....	1,253	0.01
1948-51.....	110,788	0.08
1951-53.....	496,029	0.26
1953-56.....	2,466,133	1.09
1956-59.....	35,725,815	15.0
1959-62 (current period).....	138,796,392	74.8
TOTALS.....	177,536,410	17.6

3.—Loans Made under the Farm Improvement Loans Act, by Purpose and Province, 1959 and 1960, with Cumulative Totals from 1945

Purpose and Province	1959		1960		Cumulative Totals 1945-60	
	Loans	Amount	Loans	Amount	Loans	Amount
	No.	\$	No.	\$	No.	\$
Purpose						
Purchase of agricultural implements.....	55,795	76,960,785	52,811	79,942,352	728,999	867,064,822
Construction, repair or alterations of, or making additions to any buildings or structure on a farm.....	6,192	11,244,869	5,196	10,064,430	52,261	75,196,279
Purchase of livestock.....	6,699	7,957,750	7,744	9,624,919	52,869	51,378,791
Works for the improvement or development of a farm designated in the regulations.....	1,698	1,409,851	1,558	1,312,991	21,695	14,518,899
Irrigation systems.....	184	334,407	152	277,889	587	1,005,287
Purchase and installation of agricultural equipment or a farm electric system and the alteration and improvement of a farm electric system.....	420	399,267	404	470,996	5,040	3,528,711
Erection or construction of fencing or works for drainage on a farm.....	155	120,590	176	162,169	1,408	1,089,573
Totals.....	71,143	98,427,519	68,041	101,855,746	862,859	1,013,782,362
Province						
Newfoundland.....	37	54,711	49	73,567	437	571,234
Prince Edward Island.....	888	1,065,603	1,127	1,497,752	13,199	13,081,729
Nova Scotia.....	826	1,046,093	644	854,137	9,596	9,527,783
New Brunswick.....	684	865,590	654	1,022,908	8,119	9,264,753
Quebec.....	10,344	14,677,615	8,450	13,019,863	90,527	112,578,272
Ontario.....	12,874	19,109,964	11,881	18,737,174	138,554	162,985,294
Manitoba.....	7,825	10,425,581	7,519	11,010,932	103,380	116,127,837
Saskatchewan.....	17,810	23,506,750	19,242	28,222,359	247,643	293,935,215
Alberta.....	17,851	24,584,293	16,717	24,637,398	231,754	266,652,499
British Columbia.....	2,004	3,091,319	1,758	2,865,656	24,650	29,057,748

Prairie Grain Advance Payments Act.—This Act, which came into force on Nov. 25, 1957, provides for an advance payment to producers for threshed grain (wheat, oats and barley) in storage other than in an elevator and prior to delivery to the Canadian Wheat Board, exclusive of grain deliverable under a unit quota. Advance payments of 50 cents per bu. of wheat, 25 cents per bu. of oats and 35 cents per bu. of barley are made, subject to certain restrictions as to quota and acreage. Maximum advance payment per application is \$3,000. At Dec. 31, 1961, the following advance payments had been made:—

<i>Period</i>	<i>Applications</i>	<i>Total Advance</i>	<i>Average Advance</i>
	No.	\$	\$
Aug. 1, 1957—July 31, 1958.....	50,412	35,203,467	698
Aug. 1, 1958—July 31, 1959.....	45,341	34,369,653	758
Aug. 1, 1959—July 31, 1960.....	50,047	38,492,505	769
Aug. 1, 1960—July 31, 1961.....	76,089	63,912,550	839
Aug. 1, 1961—Dec. 31, 1961.....	20,890	15,651,484	749

Repayment is effected by deducting 50 p.c. of the initial payment for all grain delivered subsequent to the loan, other than for grain delivered under a unit quota. The amounts deducted are paid to the Board until the producer has discharged his advance. At Dec. 31, 1961, refunds had been made as follows:—

<i>Period</i>	<i>Total Refunded</i>	<i>Total Advance Outstanding</i>	<i>Percentage Refunded</i>
	\$	\$	
Aug. 1, 1957—July 31, 1958.....	35,196,547	6,920	99.9
Aug. 1, 1958—July 31, 1959.....	34,347,795	21,858	99.9
Aug. 1, 1959—July 31, 1960.....	38,442,753	49,752	99.8
Aug. 1, 1960—July 31, 1961.....	62,767,045	1,145,505	98.2
Aug. 1, 1961—Dec. 31, 1961.....	6,545,267	9,178,963	41.6

Prairie Farm Assistance Act.—The Prairie Farm Assistance Act, passed in 1939, provides for direct money payments by the Federal Government on an acreage-and-yield basis to farmers in areas of low crop yield in the Prairie Provinces and in the Peace River area of British Columbia. Its purpose is to assist in dealing with a relief problem which the provinces and municipalities cannot do alone and to enable the farmers to put in a crop the following year. Payments for the 1960 crop, as at July 31, 1961, totalled \$11,004,140; total payments made under the Act since 1939 amounted to \$260,813,968.

Payments are made from the Prairie Farm Emergency Fund to which farmers contribute 1 p.c. of the value of all sales of wheat, oats, barley, rye, flaxseed and rapeseed. The additional funds required are provided from the federal treasury. The total collected through the 1-p.c. levy in 1960 was \$6,941,208. The total amount collected since 1939 was \$127,253,208.

The average yield of wheat in a township or block of sections is the basis on which payments are made. If the average yield is eight bushels per acre or less, all farmers within that area receive payments except those on the sections having a yield of 12 or more bushels per acre. The smallest isolated block eligible for payment is one-third of a township (12 sections), provided such block is rectangular in shape. A block as small as one section within an ineligible township is eligible for payment if a side lies along the boundary of an eligible township.

If an area consisting of one-third or more of the cultivated lands in any six or more adjoining sections could not be seeded or summerfallowed because of flooding or other natural causes beyond the control of the farmers, such area is eligible for award at \$4 per acre on one-half of the cultivated acreage of each farmer. Only those farmers who make their homes and are ordinarily resident in the spring wheat area are eligible for award and no award can be made with respect to more than 200 acres of the cultivated land of a farmer.

There are three categories of payments: (1) if the average yield of wheat for the township or block of sections, excluding those sections having a yield of 12 or more bushels per acre, is more than five and not more than eight bushels per acre, the payment is \$2 per acre on one-half of the total cultivated acreage of the farmer; (2) if the average yield of wheat for the township or block of sections, excluding those sections having a yield of 12 or more bushels per acre, is more than three and not more than five bushels per acre, the payment is \$3 per acre on one-half of the total cultivated acreage of the farmer; (3) if the average yield of wheat for the township or block of sections, excluding those sections having a yield of 12 or more bushels per acre, is three bushels or less per acre, the payment is \$4 per acre on one-half of the total cultivated acreage of the farmer.

In the zero-to-five-bushel categories the minimum payment is \$200, although a farm must have at least 25 acres under cultivation other than land that is seeded to grass, or be in the development stage, to qualify for this minimum award.

The Crop Insurance Act.—To assist in making the benefits of insurance protection on crops available in all provinces, the Crop Insurance Act was passed in 1959. This Act does not set up any specific insurance scheme but rather permits the Federal Government to assist the provinces to do so by making direct contributions toward the cost of providing crop insurance. The initiative for establishing schemes to meet their own regional requirements rests with the provinces. Schemes may be organized on the basis of specific crops or areas within the provinces and agreements between the provinces and the Federal Government set out the terms of insurance coverage.

Contributions from the federal treasury are limited to 50 p.c. of the administrative costs incurred by a province and 20 p.c. of the amount of premiums paid in any year. In addition, the Federal Government may make loans to any province equal to 75 p.c. of the amount by which indemnities required to be paid under policies of insurance exceed the aggregate of: the premium receipts for that year; the reserve for the payment of indemnities; and \$200,000. Those farmers who take advantage of an insurance scheme set up under the Act are not eligible for any payments under the Prairie Farm Assistance Act, nor are they required to pay the 1-p.c. levy on grain sales as provided for under that Act.

Three provinces—Manitoba, Saskatchewan and Prince Edward Island—have passed crop insurance legislation. Manitoba operated a 'test scheme' in both 1960 and 1961; in 1961, 3,675 of an estimated 40,000 farmers in the province participated. Saskatchewan operated a 'test scheme' in 1961 and Prince Edward Island will, it is expected, provide insurance for potato crops in 1962.

The Agricultural Stabilization Act.*—The Agricultural Stabilization Act (SC 1958, c. 22, proclaimed Mar. 3, 1958) established the Agricultural Stabilization Board which is empowered to stabilize the prices of agricultural products in order to assist the agricultural industry in realizing fair returns for its labour and investment, and to maintain a fair relationship between prices received by farmers and the costs of goods and services that they buy.

The Act provides that, for each production year, the Board must support the price of nine named or mandatory commodities (cattle, hogs and sheep; butter, cheese and eggs; and wheat, oats and barley produced outside the prairie areas as defined in the Canadian Wheat Board Act) at not less than 80 p.c. of the previous ten-year average market, or base, price. Other commodities may be supported at such percentage of the base price as may be approved by the Governor in Council. The Board may stabilize the price of any product in one or more of three ways: by an offer-to-purchase; by a deficiency payment; or by making such payment for the benefit of producers as may be authorized.

The price stabilization program in stabilizing prices of certain commodities by means of deficiency payments has been useful in assisting the agriculture industry to make production adjustments from a position of excessive supply to one of more normal relation-

* This Act repealed the Agricultural Prices Support Act, 1944.

ship between supply and demand. Examples of this are hogs and eggs. The institution of limited deficiency payments by the Board assisted in a necessary adjustment of production in a relatively short time. During the period of adjustment the Board guaranteed a minimum average return to producers for a limited quantity of product.

The Agricultural Stabilization Board has available a revolving fund of \$250,000,000. Any losses incurred through the Board's operations are made up by Parliamentary appropriations and any surplus is paid back to the Consolidated Revenue Fund. Assisting the Board in its operations is an Advisory Committee named by the Minister of Agriculture and composed of farmers or representatives of farm organizations.

The Agricultural Rehabilitation and Development Act.—This Act, introduced in 1961, will become an important element in national agricultural policy and national resources management policy. It is designed to increase income in the rural areas of Canada and promote better land use and soil and water conservation. The Act authorizes the Federal Government to enter into agreements with provincial governments for the joint undertaking of: (1) projects for the alternative use of lands classified as marginal or of low productivity; (2) projects for the development of income and employment opportunities for rural agricultural areas; and (3) projects for the development and conservation of the soil and water resources of Canada.

The alternative uses of land contemplated for lands unsuitable for profitable cultivation include programs for tree planting and farm woodlot management, grassing and pasturage, and recreational uses of various types, including public shooting areas and wildlife management areas. The program envisages the creation of new income opportunities for people in rural areas through the use of the rural development concept. It is proposed that studies will be conducted of the economic development factors in local areas, and committees of local people will be involved in proposed development plans for their areas. Through the development plan, government assistance will be focused on helping local people to develop new and expanded income opportunities.

The conservation of soil and water resources for agricultural purposes, the third major objective of the legislation, is not new. For years, activities under the Prairie Farm Rehabilitation Act and the Maritime Marshland Rehabilitation Act have been directed toward this end but these are regional undertakings. Under the Agricultural Rehabilitation and Development Act, soil and water conservation as an aid to agriculture will be extended to cover the whole country so that it will be possible for agriculture throughout Canada to enjoy the benefits of federal assistance on resource conservation.

The Act also authorizes the Federal Government to carry on broad-scale research and it is proposed to carry forward basic research on national land-use needs and rural adjustment trends. Toward the end of 1961, a Director of the Act was appointed and discussions were held with all the provinces on projects and programs leading to federal-provincial agreements.

Section 2.—Provincial Governments in Relation to Agriculture*

Subsection 1.—Agricultural Services

Newfoundland.—Government agricultural services in Newfoundland are operated by the Agricultural Division of the Department of Mines, Agriculture and Resources. The Division is in charge of a Director who is assisted by a staff of 21 officers. For purposes of administration, the province is divided into nine districts. A fieldman with permanent headquarters is located in each district except Labrador, where the officer is resident for the summer only. Officers in charge of different phases of agricultural development visit each district on assignments from the St. John's office.

* Information supplied by the agricultural authorities of the various provinces.

Departmental policies in support of the agricultural industry include: a bonus of \$125 an acre on land cleared by privately owned equipment; the distribution of ground limestone at a subsidized rate; the payment of bonuses on purebred sires; and financial assistance to agricultural societies, marketing organizations and exhibition committees. An inspection service is provided for poultry products, vegetables and blueberries, production of the latter being encouraged by the burning of suitable berry areas and the improvement of roads and trails leading to them. Small fruit development is promoted through the distribution of quality foundation stock.

Every encouragement is given to the production of livestock. An experimental sheep flock is maintained. Poultry and beef production have increased with favourable marketing conditions and with departmental assistance and loans under the Provincial Farm Development Loan Act. A veterinary supervises the health of animals program and the joint federal-provincial project for the eradication of bovine tuberculosis.

The Agricultural Division co-operates with the Department of Education in furthering the 4-H Club movement in the province and accepts responsibility for all projects pertaining to agriculture.

Prince Edward Island.—The activities of the provincial Department of Agriculture are suggested by its staff which includes, in addition to the Minister and Deputy Minister, a Dairy Superintendent and Assistant, two Check Testers, two Dairy Herd Improvement Promoters, a Director of Veterinary Services and nine subsidized practising veterinarians, a Livestock Director, a Marketing Director, a Horticulturist, a Soil Analysis Assistant, a Poultry Fieldman, an Economist, two Agronomists, a Director of 4-H Clubs, three Agricultural Representatives, a Nursery Supervisor, and a Director, an Assistant Director and two Extension Workers of Women's Institutes.

Nova Scotia.—The Department of Agriculture and Marketing endeavours to "help the people to help themselves" through strengthening member interest in such organizations as the Nova Scotia Federation of Agriculture, the Nova Scotia Fruit Growers' Association, various agricultural co-operative organizations, credit unions and producer organizations. The Department is assisted by the Nova Scotia Advisory Committee on Agricultural Services which has been established to promote agricultural policies and projects of the federal and the provincial Departments of Agriculture. The Committee meets quarterly to determine how the work of these Departments may be co-ordinated and directed through integrated agricultural policies and with minimum duplication of services.

New Brunswick.—Provincial government agricultural policy in New Brunswick is directed by the Department of Agriculture. The Department is headed by the Minister of Agriculture who is assisted by a Deputy Minister and the Directors of the following Branches: extension, livestock, dairy, veterinary, poultry, horticulture, field husbandry, potato and plant protection, agricultural engineering, home economics, credit union and co-operative, and agricultural education.

Quebec.—The Department of Agriculture of Quebec comprises 10 services: rural education, rural economy, extension, animal husbandry, horticulture, field husbandry, information and research, home economics, animal health, and drainage. Each service is divided into sections dealing with particular problems.

The Department also includes many other special organizations such as the Research Council, the Dairy Industry Commission, the Dairy School of St. Hyacinthe, the Provincial Extension Farm (Deschambault), the Fur Bearing Animals Extension Farm (St. Louis de Courville). The Farm Credit Bureau, the Quebec Sugar Refinery (St. Hilaire), the Provincial Veterinary School (St. Hyacinthe) and the Office of Rural Electrification are also under the authority of the Minister of Agriculture.

The annual competition for the Agricultural Merit Order, organized in 1890, is held successively in each of five regions. Each contest lasts five years and covers various farm enterprises; its objective is to ascertain the personal merit of the competitors who have most distinguished themselves in the agricultural field and can serve as examples. County Farm Improvement Contests have for 30 years promoted better methods of culture designed to increase farm income and 7,800 competitors have benefited from them.

The Drainage Service deals with soil improvement or land reclamation by renting equipment at very low rates to farmers who wish to improve their crop lands. The Department of Agriculture also gives assistance to such projects in the form of grants. Soil improvement measures include large drainage projects carried out by the Department and smaller projects carried out by groups of farmers with government help.

Various forms of assistance are offered toward improvement of crops and livestock. An artificial insemination station operates at St. Hyacinthe for the benefit of breeders' clubs, and plant breeding stations for cereal and forage crops, vegetables and small fruits are maintained in a number of localities. Trained specialists are employed in the work of controlling plant and animal pests and diseases; the main laboratories are situated at Quebec City and field laboratories are located in other districts.

Agricultural co-operation is widespread in Quebec. There are 481 co-operatives with 70,107 members and 87 agricultural societies with 28,317 members to serve local interests and organize county exhibitions. There are also 713 Cercles de Fermières (rural women's clubs) in operation with a membership of 36,903; 390 farmer clubs with a membership of 18,457; and 167 junior farmer clubs in which 4,042 young boys and girls are working on numerous practical agricultural projects. The Farm Credit Bureau was established in 1936 and, by December 1961, had made 64,934 loans to farmers amounting to a total of \$209,589,095.

An Agricultural Research Council was established by the Department in 1957. It is a consultative body composed of professors from the senior agricultural colleges of the province. It has no laboratories but encourages research in all fields of agriculture by means of subsidies to the faculties of agriculture of the provincial universities, to be carried out under the supervision of the university staffs. The Council also has a scholarship plan to encourage the education of young agricultural scientists. The findings of research projects undertaken under the auspices of the Department of Agriculture are published by the Council in *Recherches agronomiques*.

Ontario.—The Ontario Department of Agriculture provides financial assistance and administrative services through its Head Office, 11 branches and two Experimental Farms, and through research and extension work conducted under the direction of the Ontario Research Institute as well as that under way at the Ontario Agricultural College, the Ontario Veterinary College, Macdonald Institute, Western Ontario Agricultural School, Kemptville Agricultural School and the Horticultural Experiment Station.

The Department is divided into four main divisions—Administration, Marketing, Production and Extension, and the Research Institute. The Administration Division is under the direction of an Assistant Deputy Minister and the Marketing and Production and Extension Divisions are under the supervision of a Division Chief. The Ontario Agricultural College, the Ontario Veterinary College and Macdonald Institute report to the Minister and Deputy Minister. The Research Institute is the responsibility of the Director of Research.

The Administration Division is charged with the supervision of the agricultural schools, the Ontario Telephone Service Commission, the Accounts Branch and Personnel.

The Marketing Division is responsible for the administration of the Co-operatives Branch, the Dairy Branch, the Market Development Branch, the Farm Products Inspection Service and the Farm Labor Committee. The services of the Co-operatives Branch are designed to encourage and assist co-operatives to operate sound and successful

businesses under the control of their members; it also administers the Co-operatives Loans Act. The Dairy Branch provides an inspection, instruction and supervision service to all dairy factories and promotes the production of clean milk on farms. The Milk Industry Board of Ontario, functioning under the authority of the Milk Industry Act, regulates and supervises the marketing of milk and cream. The Market Development Branch seeks to widen markets for Ontario farm products both domestically and abroad.

The Division of Production and Extension administers the Extension Branch, Live Stock Branch, Farm Economics and Statistics Branch, Agricultural and Horticultural Societies Branch, Demonstration Farms, and the Field Crops Branch. Through a staff of Agricultural Representatives, one of whom is located in each county and district, the Extension Branch carries on an educational and extension service, and gives leadership to 4-H Club work and to the Ontario Junior Farmers' Association. It also provides assistance to farmers and settlers in northern Ontario in connection with land clearing and breaking and improvement of farms and livestock. The Home Economics Service, which is part of the Extension Branch, gives leadership to organized activities of rural women. The Live Stock Branch promotes livestock improvement policies with particular attention to the health of animals, gives support to purebred livestock associations, licenses artificial insemination centres, community sales, wool warehousemen and egg grading stations. The Farm Economics and Statistics Branch carries on research in farm business including cost analysis, marketing and land use; in co-operation with the Dominion Bureau of Statistics it gathers and publishes statistics of agricultural production. The Agricultural and Horticultural Societies Branch provides assistance to agricultural and horticultural fairs and exhibitions, ploughing matches and other competitions and administers the Community Centres Act. Demonstration Farms in northern Ontario, one at New Liskeard and another at Sault Ste. Marie, are operated for the demonstration of methods adaptable to the area concerned, present emphasis being on beef cattle production. The Field Crops Branch assists in the development of good cultural practices, promotes the use of improved strains of seed and works for the improvement of pastures; it also administers the Weed Control Act.

The Research Institute co-ordinates all research activities of the province's agricultural schools and colleges in addition to developing a thorough research program in the interests of agriculture and industry associated with agriculture.

Manitoba.—The Department of Agriculture and Conservation serves Manitoba through the following branches: agricultural extension; livestock; dairy; soils, crops and weeds administration; agricultural publications, statistics and radio and information service; co-operative services; the provincial veterinary laboratory; and water control and conservation.

The Extension Service deals with agricultural economics, horticulture, poultry, agricultural engineering, beekeeping, 4-H Clubs and women's work, and has specialists devoting attention to these subjects. Meetings, field days, and short courses are held. Thirty-seven agricultural representatives and six assistants are located in 35 offices in the province, each serving from one to five municipalities; 14 home economists serve designated areas.

The Live Stock Branch administers the Animal Husbandry Act, develops and administers policies that encourage the improvement and production of livestock, and works in close co-operation with the Veterinary Laboratory Service and the federal Health of Animals Division in the control of livestock diseases.

The Dairy Branch administers the Dairy Act, supervises the grading of cream, inspects creameries and cheese factories, gives instruction in cheese and butter making, issues licences to makers of dairy products and to cream graders and conducts a dairy-cost study among milk producers. Extension activities include addressing meetings and preparing articles and leaflets on dairy farm problems.

The Soils and Crops Branch deals with grain and forage crops, conservation and fertility and provides liaison between the Government of Manitoba and the Government of Canada in regard to PFRA projects. The Branch develops and administers policies that encourage good field crop husbandry and conservation practices. The Weeds Section is directly concerned with organizing weed control districts which employ full-time weed supervisors. Educational programs for general weed control include demonstrations, literature, farm meetings, etc.

The Agricultural Publications and Statistics Branch publishes and distributes annually approximately 125,000 bulletins, circulars, posters, leaflets, etc. It provides the public with agricultural statistics relating to Manitoba agriculture, and maintains an information service which uses the media of the press, radio and TV.

The Co-operative Services Branch takes care of the registration and supervision of co-operatives and credit unions and the administration of the Acts governing them. It also collects and compiles statistics on co-operative activity throughout the province.

The Veterinary Laboratory operates a diagnostic laboratory for animal diseases, the services of which are available to veterinarians and livestock owners.

The Water Control and Conservation Branch administers, through the Water Rights and the Water Power Acts, the water resources of the province and all works in connection with the control and utilization of those resources. Through the Departmental Act and other associated statutes, provision is made for the construction of works to control and use water, and to provide technical and financial assistance to local governments for the construction, maintenance, and operation of such works. Under the direction of the director and chief engineer, the Floodway Division is responsible for co-ordinating all matters in respect to design and construction of the proposed Red River Floodway.

Saskatchewan.—The Saskatchewan Department of Agriculture is organized in the following branches and services.

The Administration Branch handles general staff records and accounts. Data on crop conditions, production, marketings and income are collected and farm information dispensed daily over seven private radio stations.

The Agricultural Representative Service has a technical staff of 58, comprising a director, an assistant director, 40 agricultural representatives, six assistant agricultural representatives, four area supervisors, five farm management specialists and one audio-visual aids supervisor. This extension field staff serves all branches of the Department as well as the other agencies operating within the Co-operative Agricultural Extension Program. Agricultural representatives are active in all federal, provincial and university farm services; they work through Agricultural Conservation and Improvement Committees in each rural municipality and local improvement district to supply the farmer with scientific and practical information. Committees study local farm problems and initiate improvement programs. District Boards, with representatives from each municipality, assist the agricultural representative in planning and developing a district agricultural improvement program. Through an Earned Assistance Program, the Department pays one-half the cost of local group development projects. In farm labour matters, co-operation is maintained with the federal Department of Labour and the National Employment Service in directing annual movements of farm labour in and out of the province.

The Animal Industry Branch has four divisions: the Dairy Division administers dairy herd improvement programs, assists producers with management and production problems, inspects and licenses dairy manufacturing and frozen-food locker plants, and administers dairy, locker plant and margarine legislation; the Livestock Division encourages the use of suitable animals for breeding purposes by the establishment of purebred sire areas and by assistance in the purchase and distribution of bulls, boars and rams, and registers brands, licenses livestock dealers and agents and promotes programs on insect control, feeding and management; the Poultry Division maintains poultry and turkey

testing and banding services under Saskatchewan Hatchery Supply Flock Policies, licenses produce dealers and poultry buyers, hatcheries and hatchery agents, assists with poultry shows and field days, and otherwise promotes flock improvement; the Veterinary Division assists students in veterinary science under a scholarship plan, administers the Veterinary Service District Act and the calfhood vaccination program, provides a laboratory service for the livestock and poultry industries and co-operates with Federal Government officials and local veterinarians in disease prevention and control.

The Conservation and Development Branch provides engineering services for irrigation development, usually in co-operation with the Federal Government, and for drainage programs and projects. Reclamation of land by drainage, development of misused land and under-utilized land, and construction of provincial community pastures all come within its jurisdiction. The Branch provides engineering assistance to conservation and development areas, water users' districts, and irrigation districts in connection with water control projects. The Water Rights Division of the Branch is responsible for the administration of the ground and surface water of the province and provides for regulated use of water for domestic, municipal, industrial, irrigation, water power, recreation, wildlife and other purposes.

The Lands Branch administers Crown, school and Land Utilization Board lands, except forest reserves and parks in the settled area of the province; classifies it according to the use for which it is best suited; disposes of such lands under long-term leases; secures land control for land utilization projects; supervises new settlement projects; pays for clearing and breaking by farmers on provincial leases; and operates provincial community pastures.

The Plant Industry Branch organizes and administers programs for crop improvement and crop protection, and advises on seed and crop improvement, soil conservation, horticultural problems, and weed and pest control. The improvement of grassland is promoted through a forage crop program. The Seed Plant Division carries on custom cleaning of forage seeds and registered cereals. The Apiary Division advises on beekeeping and honey production and conducts continuous inspection.

The Agricultural Machinery Administration carries out detailed scientific tests on agricultural machines being sold in Saskatchewan to evaluate their structural and functional performance. At the conclusion of tests, reports are compiled on each machine and made available to the public. The Administration is also responsible for the administration of the Agricultural Machinery Act which involves the inspection and licensing of farm implement vendors within the province. Investigations are made into complaints arising out of machinery purchase and use with a view to equitable settlement without the necessity of litigation. Further services direct to the public are provided through an agricultural machinery extension program.

The Family Farm Improvement Branch assists farmers by providing technical services and financial assistance with farmstead development. The Branch specializes in such farmstead problems as buildings, water and sewage works, household problems, vegetation used in the farmyard, and materials handling. A farm water and sewage program is the first major program to be undertaken by the Branch.

Alberta.—The Alberta Department of Agriculture is organized in the following branches and services.

The Field Crops Branch administers programs and policies relating to crop improvement, soil conservation and weed control, crop protection and pest control, horticulture and apiculture. Agricultural Service Boards have been organized in municipal districts to assist with agricultural programs, and the Department of Agriculture is represented on each Board.

The Live Stock Branch aids in maintaining the quality of herds and flocks by assisting farmers in securing purebred herd sires and assists artificial breeding associations in the

breeding of dairy cattle. The Branch also supervises livestock feeder associations and administers legislation relating to stock inspection, brands, domestic animals and the sale of horned cattle.

The Dairy Branch administers the Dairymen's Act and the Frozen Food Locker Act. Grading and purchasing of raw produce by all dairy plants are under regulation, as are standards of construction, manufacture, processing, sanitation, and temperature control for dairies and frozen-food lockers. A regular cow-testing service is available to dairy producers and the Branch laboratory conducts chemical and bacteriological analyses needed for industrial directives. Yearly cost studies and dairy farm management services are in operation in the principal milk-producing areas.

The Poultry Branch carries on programs for the improvement of poultry husbandry and supervises flock approval for the control of pullorum disease. The Branch issues hatchery, wholesale, first receiver and trucker licences for the handling of poultry products.

The Veterinary Services Branch provides scientific diagnoses of livestock and poultry diseases through its laboratory; conducts investigations of disease conditions; lectures in veterinary science at the University of Alberta, Schools of Agriculture, and many meetings; and promotes government policies aimed at reducing losses throughout the province.

The Agricultural Extension Service operates 44 offices and employs the services of 57 district agriculturists and 21 district home economists. The district agriculturists assist farmers with their problems and advance departmental policies designed to improve the standard of agricultural practices. The district home economists provide a similar service for farm women. Bulletins are prepared dealing with agricultural and home economics topics. The Branch is responsible for the supervision of agricultural societies and, in co-operation with the federal Department of Labour, is concerned with recruitment and placement of farm labour.

The Fur Farms Branch administers the licensing and exporting of live animals and pelts, and assists fur farmers in care, management and stock improvement; the Radio and Information Branch conducts five broadcasts a week over seven radio stations and issues weekly bulletins to press and radio; the Water Resources Branch deals with water rights, drainage, irrigation, and water power development; the Lands and Forests Utilization Committee (composed of representatives from the Department of Lands and Forests, Power Commission, Department of Municipal Affairs, University of Alberta and Department of Agriculture) deals with the proper use of submarginal agricultural land; and the Farm Economics Branch, formed Jan. 1, 1961, studies various economic farm problems and advises farmers on management techniques.

Credit is made available to young farmers for the purchase of farm lands under the Farm Purchase Credit Act and the Farm Home Improvement Act. Schools of Agriculture and Home Economics are operated at Olds, Fairview and Vermilion (see p. 398).

British Columbia.—The Department of Agriculture has four main branches. The Administrative Branch is responsible for the general direction of agricultural policies, the administration of legislation affecting agriculture and the compilation of reports and publications. This Branch also maintains direct supervision of the Field Crops, Soil Survey, Plant Pathology, Entomology, Apiary, Markets and Statistics, Farmers' Institutes and Women's Institutes Branches.

The Livestock Branch engages in the promotion and supervision of the livestock industry and provides veterinary services affecting disease control regulations; its work also includes supervision of stock brands, inspection of dairy and fur farm premises, and inspection of beef grading. In addition, the Branch supervises the operations of the Dairy Branch in the inspection of commercial dairy premises. Officials are stationed at 11 centres throughout the province.

The Horticulture Branch supervises fruit, vegetable and seed production, and provides advice on plant diseases and insect pest control. The Branch maintains field offices at 10 points in the southerly section of the province.

The Agricultural Development and Extension Branch offers general information services to farmers through 19 offices which cover all major farming districts. In addition, this Branch provides agricultural engineering service, supervision of the government land-clearing program and farm labour services, and promotes junior club projects. The Poultry Branch offers extension services to the poultry industry.

Subsection 2.—Agricultural Colleges and Schools

All provinces provide facilities or assistance for training in agricultural science at university level. The colleges and schools are administered by either the Department of Agriculture or the Department of Education of the respective province.

Newfoundland.—There are no agricultural colleges in the province but the Agriculture Division of the Department of Mines, Agriculture and Resources provides a number of scholarships annually for young men to attend agricultural colleges in other provinces.

Prince Edward Island.—A two-year course in scientific agriculture offered at Prince of Wales College, Charlottetown, prepares students for third year at Macdonald College, Que. In the Vocational School, short courses provide knowledge and skill in agricultural pursuits and develop in the student a sense of the dignity and importance of agriculture as a calling and an understanding of the value of the industry to the province.

Nova Scotia.—The Nova Scotia Agricultural College at Truro offers two courses—the first two years of a degree course in agriculture and a two-year course in vocational agriculture. The College assists in conducting short courses at various provincial centres, supports Folk Schools and gives direction to 4-H Club organizations. Tuition is free for Canadian students.

New Brunswick.—The four agricultural schools of New Brunswick are located at Woodstock, Fredericton, St. Joseph and St. Basile. Two-term agricultural courses extending over five months each year are offered at Fredericton, St. Joseph and St. Basile and a three-year course is conducted at Woodstock. The curriculum includes training in all phases of agriculture, shop and general academic work. Ten-month home economics courses are also offered at Woodstock and St. Joseph.

Quebec.—Four-year university courses leading to a degree of Bachelor of Science in Agriculture are available through Laval Faculty of Agriculture (Ste. Anne de la Pocatière), l'Institut Agricole d'Okla (affiliated with the University of Montreal), and McGill Faculty of Agriculture (Macdonald College). The Provincial Veterinary School at St. Hyacinthe (affiliated with the University of Montreal) offers a four-year course leading to a doctorate in veterinary medicine. There are also 15 secondary agricultural schools throughout the province, and five orphanages offer courses in agriculture. About 1,000 students, the great majority of whom are sons of farmers, attend these intermediate or regional schools of agriculture and 230 pupils follow practical agricultural courses in the orphanages. A farm is annexed to each school for practical training and specialists give instruction on the maple-sugar industry, farm mechanics, co-operatives, plant protection, veterinary hygiene, aviculture, marketing and silviculture. School co-operatives and clubs are organized and directed by the pupils under supervision. Household science training for the daughters of farmers and settlers is given in nine of these schools.

Ontario.—A two-year course at the Ontario Agricultural College (for the Associate Diploma in Agriculture) provides basic training for young persons interested in making agriculture their vocation. Study includes the application of science to agricultural practice and training for rural citizenship. A four-year course at the same institution for the degree of Bachelor of Science in Agriculture gives fundamental education in the science of agriculture. Sound training is provided for farming as a profession, for entrance into

all agricultural services, industry and teaching, and for those who wish to proceed to graduate studies for master and doctorate degrees. Graduate courses are offered leading to the degree of Master of Science in Agriculture. Graduate students are enrolled in a department or departments of the Ontario Agricultural College conjointly with a department or departments of the University of Toronto for advanced courses of study and training in experimentation and scientific investigation. M.S.A. graduates may go into teaching, research or postgraduate study.

Macdonald Institute offers two main courses in home economics for young women. The one-year course of practical training in the art and science of homemaking earns a diploma of merit but gives no professional standing. The four-year professional course leads to a Bachelor of Household Science degree granted by the University of Toronto. University matriculation standing (nine papers of grade 13) is necessary to enter the four-year course. At its completion, Food Administration Option graduates are eligible to work in the professional dietetic and food-service fields. These graduates and those of the Clothing and Textiles Option and the Home Management Option are finding increasing employment in many areas, notably in the education, extension, business and research fields.

The Ontario Veterinary College offers a five-year course leading to the degree of Doctor of Veterinary Medicine. In addition to its function as a teaching institution, the College is a research centre for animal diseases and provides free consultation services for veterinary surgeons in practice as well as extension services in the interests of the livestock industry.

The Kemptville Agricultural School offers: a diploma course in agriculture comprised of two six-month terms, giving practical training in modern farming methods and community leadership, and designed primarily for young people who wish to farm but serving also as a preparation for many other occupations closely connected with agriculture; a six-month advanced course in agricultural mechanics for diploma graduates in agriculture; a six-month homemaker course leading to a diploma in homemaking and qualification for positions in home economics fields; a diploma course comprised of two six-month terms for girls wishing to prepare for positions in food services, sewing centres, tourist services and other fields of home economics. In addition, a three-month course is given for dairy apprentices, leading to the Dairy School Diploma required for certified buttermakers, cheesemakers and operators of dairy manufacturing plants. A 450-acre farm and residence life are features of the Kemptville Agricultural School.

The Western Ontario Agricultural School at Ridgeway offers a two-year diploma course (October to April), which gives practical training in modern farming methods and prepares young men to serve agriculture in allied occupations. The facilities comprise a group of modern buildings, including a residence and dining hall, modern classrooms, laboratories, and athletic facilities. There is a 425-acre farm with up-to-date equipment, much of which is used for student activity and for practical demonstrations. A full complement of livestock is maintained on this farm for carrying out the school program.

Manitoba.—The Faculty of Agriculture and Home Economics of the University of Manitoba offers degree courses in agriculture and home economics as well as a two-year, sub-collegiate diploma course in agriculture. Practical short courses in agriculture and homemaking are also given at the Agricultural Extension Centre at Brandon.

Saskatchewan.—The University of Saskatchewan offers a degree course in agriculture designed to meet the needs of those who intend to teach agriculture in secondary schools or colleges, to engage in research extension or administrative work, or to farm. Specialization is possible with permission of the faculty. Provision is made for combined courses in agriculture and arts or commerce. Postgraduate courses are available.

The Saskatchewan School of Agriculture offers a practical course intended to give sound training in farm practice and also to train young men in rural leadership.

All courses leading to a degree in home economics require four years. The prescribed course of studies for the first two years is the same for all pupils but in the third and fourth years four types are offered: (1) for teachers, (2) for dietitians, (3) general, and (4) additional specializations. A combined course leading to a degree in arts and science and home economics requires at least five years.

Alberta.—The University of Alberta offers a four-year degree course in agriculture to students with senior matriculation or its equivalent. Students may elect a general program or major in a wide range of special courses in the fields of animal science, economics, entomology, dairying, plant science, and soils. Graduate work at the master level is offered in all departments and at the doctorate level in some.

The Alberta Schools of Agriculture and Home Economics, located at Olds, Fairview and Vermilion, offer practical courses in agriculture and homemaking. The purpose of the schools is to train young men for farming and young women for homemaking. Students must have grade nine standing for entrance into the regular two-term course. A one-year course is offered to those who have 70 or more high school credits. Living accommodation is provided as well as auditorium and gymnasium facilities.

During the summer months the schools are used for agricultural meetings and conferences of organizations that are connected with agriculture. During the month of July, leadership courses, 4-H Club gatherings, farm camps and other events keep the facilities in constant operation.

British Columbia.—The Faculty of Agriculture at the University of British Columbia offers a four-year general degree course in agriculture and a five-year honours course. In the honours course there are 15 fields in which a student may specialize. Work is also offered by the Faculty of Agriculture in the Faculty of Graduate Studies through which a student may proceed to the degrees of Master of Science in Agriculture and Master of Science; in a limited number of fields, work is offered at the doctorate level. The Faculty also offers a one-year or two-year diploma course in occupational agriculture, adaptable to the needs of individual students.

In co-operation with various branches of the provincial Department of Agriculture and under the auspices of the University Extension Department, the Faculty of Agriculture also offers a number of short courses which vary in length from one or two days to several weeks.

Section 3.—Land and Water Conservation*

Subsection 1.—Federal Projects

Twenty-seven years have passed since the inception of the Prairie Farm Rehabilitation program in 1935 to deal with the immediate problems of drought and soil drifting which were then having a severe effect on agriculture on the Canadian prairies. Since that time many policies and projects have been undertaken, varying widely in nature and scope, but basically they have all had one objective—better land utilization and more efficient use of available water resources as a means of providing greater security and stability to prairie agriculture.

In this connection, much progress has been made and much valuable knowledge and experience has been gained on which to base long-range land and water conservation planning in Western Canada. This work has involved the introduction of those systems of farming, land use, and water supply that would provide greater economic security for the agricultural population on the prairies and, more recently, the development of larger and more comprehensive land utilization and water development schemes that will serve entire agricultural districts and prairie communities.

* Except as otherwise credited, prepared under the direction of S. C. Barry, Deputy Minister of Agriculture, Ottawa.

Cultural improvements have led to an almost completely new approach to the economics and practice of dryland farming. Techniques in soil management and methods of making more efficient use of limited supplies of available soil moisture have been developed and are in common use, helping materially to minimize the drought problem in drier areas. The development of assured farm water supplies throughout the drought region for domestic, stockwatering and irrigation purposes has also contributed greatly to a more stable agriculture over a wide area. In particular, the development of assured feed supplies through irrigation for the winter feeding of livestock and the provision of reserves of feed to carry livestock over periodic dry periods has given much greater stability to the livestock industry and has been a major factor in encouraging agricultural diversification in the plains region.

Finally, the permanent removal from cultivation of lands that have proven submarginal for cereal crop production, the fencing, regrassing and other improvement of such areas for community pasture purposes, and the resettlement and rehabilitation of farmers operating such lands, principally to irrigation projects, have been major factors in bringing about necessary adjustments in the pattern of land use on the prairies.

Where these adjustments have been of considerable benefit to the agricultural economy, new and growing demands for water required by larger municipal and urban centres for domestic and industrial purposes, as well as to support large-scale irrigation, have made necessary the development of larger and more comprehensive water storage and irrigation schemes where more dependable and plentiful water supplies can be obtained. PFRA in more recent years has devoted an increasing amount of its attention to this type of development.

Prairie Farm Rehabilitation Act

Under the terms of the Prairie Farm Rehabilitation Act, an initial appropriation of \$4,750,000 was made to cover the cost of rehabilitation activities for a period of five years, and an Advisory Committee was established to give leadership to the program. Rather than establish new services, existing agricultural services were given assistance to expand their operations to handle the work, particularly the Experimental Farms Service. As the PFRA program developed, a separate administration was set up in Regina (in 1936) to direct water development, while the cultural improvement program continued under the direction of the Experimental Farms Service. Then, by amendment to the Act in 1937, the PFRA was extended to include land utilization and resettlement. It was realized, however, that for the development of a sound agricultural economy on the prairies, more long-term measures for rehabilitation would be necessary. In 1939 therefore, additional financial allocations were made and the five-year limitation to the PFRA was removed.

Water Development.—Projects constructed under the water development program are carried out under the supervision of the Water Development Division of the Agricultural Services Branch are divided into two main categories according to size of project, number of people benefiting, and cost of construction: (1) individual and neighbour projects and (2) community projects.

Individual and neighbour projects are works serving the needs of one or two farmers. They are generally in the form of small dams and dug-outs that supply water for stockwatering and domestic use and/or for irrigation purposes. PFRA provides all engineering services required to plan and design such projects and a portion of the construction costs. The rate of assistance paid on individual projects is based on yardage of earth moved and amounts to seven cents per cubic yard up to a maximum of \$250 for dug-outs, \$300 for stockwatering dams and \$600 for irrigation projects. Where two or more farmers pool their water resources to build neighbour projects, assistance is paid up to a maximum of \$1,000. Responsibility for the actual construction is left to the farmer who either contracts the work out or builds the project himself.

Community projects utilize the waters of well-defined watersheds and are built to serve the needs of groups of farmers. Each project is justified on the basis of its individual merit and the major share of cost is borne by PFRA.

During the 27 years in which PFRA has been engaged in this work, the program has resulted in the construction of close to 79,000 individual and neighbour projects and about 800 community water storage and development schemes.

Major Projects.—While the immediate needs of farmers are being met by PFRA, attention has also been given in more recent years to the construction of larger irrigation and reclamation projects involving the development of many thousands of acres of land. Such undertakings are in line with the long-range land-use plan to provide for expansion and stability in Canada's growing economy. Of an estimated 3,000,000 acres of potentially irrigable land in Western Canada, 1,500,000 acres have been or are in process of being developed. The intention is, when conditions warrant, to develop the remainder of this valuable resource.

The development of these large irrigation and reclamation works in Western Canada which, either because of their size or their location, have not been included under the regular PFRA appropriation, have been in recent years under the supervision of the Prairie Farm Rehabilitation Administration. They are undertaken by agreement between the Federal Government and the provincial government concerned, on a cost-sharing basis. Special authorization of Parliament is required for such construction.

St. Mary Project.—To make available for irrigation a larger percentage of the water flowing through southern Alberta in the Waterton, Belly, St. Mary and Milk Rivers, a program to extend the original St. Mary Irrigation Project was undertaken by an agreement between the Government of Canada and the Province of Alberta. The Federal Government agreed to construct the main supply reservoirs and the connecting canals, while the Province of Alberta undertook the responsibility for construction of the irrigation distribution system. When completed, this project will extend irrigation to approximately 510,000 acres of land in the area south of Lethbridge and east beyond Medicine Hat.

Construction of the St. Mary Dam, key structure on the whole project, was completed in 1951. During 1958 the second phase, involving the diversion of the Belly River into the St. Mary Reservoir, was completed. The third step, involving the diversion of the Waterton River into the St. Mary Reservoir by way of the Belly River diversion, is under construction. The present storage and distribution facilities extend irrigation to 296,000 acres of land in the St. Mary Project. With the addition of resources of the Waterton River, a further 214,000 acres of land can be brought under irrigation.

Bow River Project.—The Bow River Irrigation Project, situated west of Medicine Hat in Alberta and having an irrigation potential of 240,000 acres, was taken over by the Federal Government from the Canada Land and Irrigation Company in 1951; the Company had developed about 57,000 acres before financial difficulties caused work to be suspended. PFRA commenced the orderly rehabilitation of the project works and is proceeding with the development of the remainder of the area. The Federal Government is responsible for settlement of the areas surrounding Vauxhall and Hays. These areas have provided farms for 436 settlers, 162 of whom have now been established in the Hays district.

South Saskatchewan River Development Project.—In July 1958 agreement was reached between the Federal Government and the Province of Saskatchewan to start construction on the South Saskatchewan River Project, a large-scale multi-purpose water conservation project proposed for development in south-central Saskatchewan. The purpose of the project is to make better use of the water resources of the river through irrigation, river control, power, urban water supply and recreation. Control will be achieved by two dams, the major one on the South Saskatchewan River at a point approximately half-way between the towns of Outlook and Elbow and the other at the divide between the valleys of the

MAJOR IRRIGATION AND RECLAMATION PROJECTS EXISTING

PROPOSED, 1962



ALBERTA

SASKATCHEWAN

MANITOBA

LEGEND

- Lands presently being irrigated
- Irrigable lands where irrigation is proposed
- Lands presently reclaimed or protected by flood control works
- Lands for which reclamation works are proposed
- Existing large dams and reservoirs
- Large dams under construction
- Proposed large dam
- Proposed reservoir



IRRIGATION AND LAND RECLAMATION IN THE PRAIRIE PROVINCES



Alberta Government Photograph

Irrigation ditches bring life to hundreds of thousands of acres of formerly marginal or unusable land in the dry southern prairie region of Canada. Assured water supplies have given greater stability to the livestock industry and have encouraged diversification of crops. In Alberta, in addition to grain, hay and other normal dry-farm crops, sugar beets and canning vegetables prosper under irrigation.

South Saskatchewan and the Qu'Appelle Rivers. The agreement provides that Manitoba and Saskatchewan will share the cost of building the dam and all other works connected with the creation of the reservoir; 75 p.c. will be borne by the Federal Government and 25 p.c. by Saskatchewan, the province's share to be not in excess of \$25,000,000.

The project, when completed, will provide water for the irrigation of approximately 500,000 acres of land located in central Saskatchewan on both sides of the South Saskatchewan River between the town of Elbow and the city of Saskatoon and in the Qu'Appelle Valley extending east of Elbow to the Manitoba border. Power installations on the dam will have a potential output of 475,000,000 kwh. The reservoir, which will be 140 miles long and will store 8,000,000 acre-feet of water, will be constructed at an estimated cost of \$96,000,000. The main dam will be 210 feet high and of earth fill with an overall length of 16,700 feet. It will be the largest rolled-earth dam ever built in Canada and one of the largest dams of its kind in the world.

Construction was started in the autumn of 1958 and at Dec. 31, 1961, 26 contracts totalling about \$53,777,312 had been let. Of these, 19 contracts had been completed, three were in progress on a winter-work basis, two had been suspended until more favourable weather conditions, and one had not yet begun. The value of the completed contracts was \$16,930,000. Contracts awarded but not yet completed account for a further amount of about \$36,847,000. Partial payments have been made on these contracts, bringing the total expenditure to the end of 1961 to about \$53,777,312. In addition to paying 75 p.c. of the cost of construction of the dam, the Federal Government is supplying all engineering, administration and supervisory requirements.

Saskatchewan River Reclamation Project.—The possibility of reclaiming a large area of land for agricultural purposes 1,500,000 acres of potentially valuable Saskatchewan bottom land between Tobin Rapids in Saskatchewan and Cedar Lake in Manitoba has long been subject of speculation and conjecture for many years. With this objective in mind the PFRA began investigations in 1950 and a complete engineering study of the lands conducted has been prepared and submitted to the Federal Government for consideration. In addition, as a result of an agreement reached early in 1953 between the Government of Canada and the Province of Manitoba, work was undertaken on the construction of necessary flood control and drainage works to reclaim about 100,000 acres of land in one region of the project referred to as the Pasquia Area, near the town of The Pas in Manitoba. Under the terms of this agreement, the Government of Canada assumed the cost of building the main protective and drainage works and Manitoba the cost of the permanent maintenance of works, and internal drainage. One-quarter of the reclaimed land is to be used for the resettlement of farmers from drought areas and the remainder will be sold. Seventy-five per cent of the proceeds from the sale of the land will go to the Federal Government as partial reimbursement of the costs of building the main protective works. Construction was completed in 1960. Settlement of the area will begin shortly.

North West Escarpment Reclamation Project.—At the request of the Manitoba Government, extensive investigations have been undertaken by PFRA in the Red River and Porcupine Mountain areas and Whitemud River watershed where stream flow and erosion problems exist in an area containing over 252,000 acres of valuable agricultural land. The reclamation work, the cost of which is divided equally between the Federal Government and the Province of Manitoba, consists of clearing and lysing the area and draining preventing stream-bank erosion and aligning channels by building cutoffs and levees. In addition, considerable attention has been given, since 1958, to watershed investigations on the headwaters of Wilson Creek to discover improved methods of controlling floods and erosion problems in the upper and lower reaches of such streams.

Assiniboine River Project.—Along the Assiniboine River between Portage la Prairie and Headingly in Manitoba, a continual problem of flooding has faced farmers and communities over the years, often causing considerable damage to land, buildings and other property in districts adjacent to the river. During the early years, the federal Department of

Public Works looked after most of the flood protection work carried out in the area. In 1950, however, responsibility for the work was transferred to the federal Department of Agriculture under the Prairie Farm Rehabilitation Administration.

Flood control activities carried out by the PFRA along the Assiniboine have mainly involved construction of dykes and channel improvement work. In addition, however, a considerable amount of survey work has been conducted on both the upper and lower reaches of the river, studying potential storage sites that would provide more effective stream-flow regulation throughout the river system.

British Columbia Projects.—The Prairie Farm Rehabilitation Administration has been carrying out irrigation development and land reclamation and providing engineering services in British Columbia since 1944; this work has been undertaken for and in connection with the Veterans' Land Act, the Experimental Farms Service, and at the request of the Province of British Columbia.

Nine irrigation projects have been developed or rehabilitated in the arid central interior of the province. The irrigable land on these projects totals approximately 5,300 acres and provides direct or supplemental living for some 1,400 families engaged mainly in the growing of small fruits and vegetables and in dairying.

Seven of these irrigation projects were constructed for the Veterans' Land Act following the Second World War and benefit approximately 500 veterans. The Johnson Western Canada Ranching Projects, Nos. 1 and 2 (Todd Hill Irrigation District), and the Chase Irrigation Project are located in the South Thompson Valley. The Cawston Benches Project, Westbank Project, Penticton West Bench Project and Bankhead Project are all located in the southern Okanagan Valley and form some of the largest individual developments for veteran settlement in Canada.

The other two developments are located in the Thompson Valley near Kamloops and were constructed in co-operation with the Province of British Columbia. The B.C. Fruitlands Irrigation District includes some 2,000 acres of irrigable land and also some 700 small holdings. This district had been served by a gravity water system from Jamieson Creek for over 40 years which had deteriorated to such an extent that the district could no longer guarantee water to its users. The rehabilitation of this project was undertaken by agreement with the province and the irrigation district concerned, and completed by PFRA in 1958. A pressure irrigation system was also installed by PFRA for the irrigation of 290 acres of the Provincial Sanatorium farm lands at Tranquille.

A major reclamation project was undertaken in the Lillooet Valley upon agreement between the Federal Government, the Government of British Columbia, and the Pemberton Valley Dyking District. This project involved the reclamation of the lower 20 miles of the Lillooet River Valley through dyking, drainage and channel improvement to reclaim some 12,000 acres of agricultural land and to protect an additional 2,000 acres already under cultivation.

Engineering services have been provided by PFRA to the Experimental Farms and to other government agencies as requested. Some of these services have included surveys in the Fraser River Basin for the federal-provincial Fraser River Board, reports on proposed project development and reclamation in British Columbia, and services to the Experimental Farms for the establishment and improvement of farm water supplies and irrigation systems.

Land Utilization and Resettlement.—The 1937 amendment to the Prairie Farm Rehabilitation Act broadened its scope to include land utilization and land settlement, opening the way for a program that has had a far reaching effect on the stability of agricultural production in many areas throughout Western Canada. By agreement with the Provinces of Saskatchewan and Manitoba, lands not considered suitable for cereal crop production may be transferred to the Federal Government for development by PFRA into community pastures. The province concerned selects the area to be developed and

obtains control of the land. The land is then leased to the Government of Canada which in turn agrees to construct, maintain and improve community pasture facilities in the area selected. In this way, land subject to the hazards of soil drifting is removed permanently from cultivation and is again protected by a grass cover.

As these submarginal and marginal lands are converted into productive pastures, livestock production on the surrounding farms is being increased, thus making possible a greater diversity of farm income. Since the community pasture program began in 1937, a total of 2,136,000 acres of land has been developed into 69 separate pasture units. These pastures, primarily intended for reserve grazing areas to supplement farm and ranch pastures, are now providing controlled spring, summer and fall grazing for 139,000 head of stock annually, belonging to approximately 7,000 farmers and ranchers. In addition, a considerable tonnage of hay and some grass seed has frequently been harvested from these pastures. This program of pasture improvement carried on by PFRA has provided leadership to farmers in the development of their own farm pastures.

The resettlement of farmers from these submarginal areas has been handled jointly by the Federal Government and provincial governments concerned. Where available, the provincial governments provide suitable Crown land on which to resettle farmers. PFRA in turn accepts responsibility for moving the farmers and their effects to the new locations, and for developing the submarginal areas for pasture purposes. Every effort is made to resettle farmers on lands located close to existing or proposed pastures. Where no suitable Crown lands are available, PFRA provides its own through irrigation development. Two such schemes have been built specifically for resettlement purposes in Alberta: a large block of land adjacent to the Eastern Irrigation District, called the Rolling Hills Project, to which have been moved 118 farm families from the drought areas; and the Bow River Irrigation Project where 162 farm families are now settled in an area of approximately 27,000 acres called the Hays District.

On somewhat the same principle, six resettlement and rehabilitation projects have been built in the heart of the drought area in southwestern Saskatchewan. The only difference is that for these projects the purposes and objectives of the resettlement and rehabilitation program have been achieved without necessarily involving the movement of farmers to new locations. The six schemes—the Val Marie, West Val Marie, Eastend, Consul, Maple Creek and Swift Current Irrigation Projects—are subdivided into 40-to-80-acre plots which are leased out or sold to farmers in surrounding districts for feed production. On the irrigated land, farmers can be assured of producing adequate and dependable winter feed supplies as well as reserves of feed to carry stock over prolonged drought periods.

In a similar manner hundreds of farmers have been rehabilitated without the necessity of moving from their farms by the development of farm-size and small community irrigation schemes built throughout the prairies with PFRA assistance.

Maritime Marshland Rehabilitation Act

The MMRA program was instituted by federal legislation in 1948 to provide assistance to the Provinces of Nova Scotia, New Brunswick and Prince Edward Island in preserving and developing tidal marshland areas, most of which are situated adjacent to tributaries of the Bay of Fundy. The areas are subject to flooding by tide water unless protected by systems of dams or dykes and aboiteaux (freshwater control structures). The soils are potentially productive and when properly used yield excellent crops.

Responsibility for the rehabilitation of approved marshland areas is shared by the provincial and federal governments. The latter undertakes the construction of works required to prevent flooding of lands by saltwater, maintains the structures until this responsibility is turned over to the provinces, and provides engineering services required in connection with the program. The provincial governments organize the owners of land and ensure that the marshland areas are adequately drained and that suitable land-use policies are developed and encouraged.

By Mar. 31, 1961, the provinces had requested the protection of some 96,000 acres from saltwater flooding. Structures had been completed to protect 80,203 acres and plans were under way to reclaim an additional 989 acres (Nova Scotia 44,015 acres; New Brunswick 36,902 acres; and Prince Edward Island 275 acres). This acreage forms parts of approximately 3,500 farms having a total area of over 450,000 acres.

Conventional structures for the protection of marshlands are normally considered to be dykes and aboiteaux, supplemented by stream-bank control works. It has been found feasible to construct aboiteaux or dams across some tidal streams which eliminate the need for dykes and aboiteaux upstream of the proposed site and permit more efficient drainage of the land protected. Two of the more important structures of this type are the Annapolis River Dam in Nova Scotia and the Tantramar River Dam in New Brunswick, both in full operation. Each was undertaken on a share basis with a provincial authority, as they serve as river crossings for traffic and eliminate the need to rebuild highway bridges at these locations in the future. The structures consist of rock-fill dams and freshwater discharge control gates; they were constructed on tidal rivers having tide ranges in excess of 30 feet and 46 feet, respectively. The addition of power-generating facilities to harness some of the energy produced by the tide at Annapolis Royal, N.S., was studied and found possible, but the cost was too high to warrant further consideration.

Canada Water Conservation Assistance Act*

To help municipal and provincial governments with financing major water conservation and control projects, the Canada Water Conservation Assistance Act was passed by Parliament in 1953. Under the Act, the Federal Government may enter into an agreement with any province matching the provincial contribution up to a maximum of 37.5 p.c. of the cost of a major water conservation project that is considered to be beyond the normal financial means of the provincial and municipal governments involved.

During 1961, the Federal Government signed three agreements with the Government of Ontario providing federal financial participation in three major water conservation projects. In each project, the estimated cost was distributed among the federal and provincial governments and a conservation authority, the two governments each contributing 37.5 p.c. of the cost and the conservation authority the remaining 25 p.c.

The first agreement under the Act was signed Jan. 28, 1961, providing federal assistance to a \$9,640,500 flood control and water conservation project in the Upper Thames River basin. The Upper Thames River Conservation Authority, a grouping of 31 municipalities, will pay 25 p.c. of the cost of construction of five dams and three channel improvement works included in the project and will administer the completed project. Construction of the works will be spread over a 10-year period.

Other agreements signed between Canada and Ontario provided for federal cost-sharing in the construction of the \$825,000 Parkhill Dam Project in the Ausable River watershed in western Ontario and the \$24,000,000 flood control and water conservation works that will be built along the Humber and Don Rivers in the Metropolitan Toronto area. The conservation authorities involved in these projects are, respectively, the Ausable River Conservation Authority and the Metropolitan Toronto and Region Conservation Authority. Prior to the passing of this legislation, the Federal Government provided 37.5 p.c. of the cost of building the Shand and Luther Marsh Dams on the Grand River, the Conestogo Dam on the Conestogo River, and the Fanshawe Dam on the Thames River.

To be eligible for federal assistance under the Canada Water Conservation Assistance Act, a project must meet three conditions. The works must be designed primarily for flood control or other beneficial uses. It must be major in character in relation to the financial capability of the province entering into the agreement. It also must be beneficial to a community as a whole. The Act requires that complementary conservation measures be carried out in addition to the primary flood control and water conservation works.

* Prepared in the Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa.

Subsection 2.—Provincial Projects

Saskatchewan.*—The Conservation and Development Branch of the Saskatchewan Department of Agriculture was established in 1949 to administer water rights in the province and to carry on an active program in irrigation, drainage, flood control and land reclamation and development. Program emphasis has varied from year to year; drainage and flood control were of greatest importance during most of the 1950's but, because of the drier weather during the past four years, irrigation and community pasture development have taken precedence. The following is a summary of Branch activities to Mar. 31, 1961.

Water Rights.—Surface and ground water resources of the province are administered by the Water Rights Division of the Branch. At Mar. 31, 1961, 6,204 projects were licensed and 1,636 authorized under the Water Rights Act, involving total storage of 457,584 acre-feet; two hydro-electric developments were licensed and three other licences had been applied for under the Water Power Act; 123 water-well drillers were licensed and 1,293 wells were reported drilled under the Ground Water Conservation Act.

Irrigation Development.—Up to the end of March 1961, 54 irrigation projects had been initiated on which topographic surveys had been conducted on 440,289 acres (approximately one-half on the South Saskatchewan River). In addition, 340 miles of ditch had been constructed and 1,716 water-control structures built. Forty-six Water Users' Districts had been organized (one new district added in 1961) comprising some 203,749 acres.

Drainage and Flood Control.—By the end of March 1961, some work had been done on 461 drainage and flood-control projects. Topographic surveys had been carried out on 196,785 acres, some 682 miles of ditch dug, and 977 control structures built. A total of 8,393,178 acres had been organized into 79 conservation areas.

Land Development and Pasture Construction.—A total of 154 land-development and community pasture projects had been worked on up to the end of March 1961. Some 73,785 acres of forage had been seeded and 1,166 miles of fence constructed. Approximately 715,460 trees had been planted under the afforestation program.

Community Pastures.—Through the Lands Branch of the provincial Department of Agriculture, the province had transferred title to 1,196,437 acres and had leased without charge another 356,517 acres of land to PFRA for community pastures. Outside the PFRA program, the province at Mar. 31, 1961 had another 915,946 acres in 136 community pastures operated by co-operative associations, by municipalities or by the provincial Department of Agriculture; during 1961, 26 pastures operated by the province provided grazing for 25,335 head of cattle owned by 1,621 local farmers.

Development of Land for Cultivation.—Crown lands, either under cultivation or suitable for cultivation, are leased for 33-year periods. The province may reimburse farmers in cash for the cost of clearing and breaking virgin land or the farmers may retain crop shares equivalent in value to costs sustained. To Mar. 31, 1961, the investment of the province for land clearing and breaking amounted to \$8,720,476, and included work done in six settlement projects involving initial clearing and breaking on about 200 farm units before the land was leased.

Alberta.†—The Alberta Water Resources Act gives the Minister of the Department of Agriculture wide powers to investigate the water resources of the province and extensive surveys have been carried out to determine the distribution and extent of the available water supply in the province and the most beneficial use for irrigation, water power and other purposes. The Water Resources Branch of the provincial Department of Agriculture administers the licensing of water power projects and the construction work in several

* Revised by the Deputy Minister, Saskatchewan Department of Agriculture.

† Revised in the Deputy Minister's office, Alberta Department of Agriculture.

irrigation projects. Irrigation projects are also licensed and water allocated for domestic and irrigation purposes. Other work includes administration of drainage districts and co-operation on the Peace River dug-out project and on river protection projects where flooding occurs. In more recent years much of this work has been carried out by the Federal Government in co-operation with the Government of Alberta.

Stream measurement is being done by the Hydrometric Service of the federal Department of Northern Affairs and National Resources, and irrigation surveys are carried out largely by the water development organization under PFRA (see p. 399).

The figures given in Table 4 of land actually irrigated in Alberta in 1960 are only approximate because, while there are increases resulting from the creation of new pump irrigated areas, there are also decreases caused by soil reclassification and less water use, depending on natural precipitation. Seepage and alkali problems also have an effect on acreage quoted as irrigable. Figures for small private irrigation projects have been omitted because of their uncertain water supply.

Gross cash returns from the irrigable area are estimated at \$30,000,000, although this figure does not take into account the value of stockwater supplied through irrigation works. Nor does it include many other credit items that are difficult to evaluate such as the recreational use of water which, to these once semi-arid areas, is particularly important, and the value of fish taken from irrigation reservoirs which is known to be quite significant. Several communities receive their entire domestic water supply via irrigation canals.

4.—Major Irrigation Districts in Alberta, 1960

District	Classified Irrigable Area	Area Actually Irrigated in 1960
	acres	acres
St. Mary and Milk Rivers Development.....	259,861	129,829
Magrath Irrigation District.....	7,885	5,000
Raymond Irrigation District.....	19,058	15,200
Taber Irrigation District.....	32,100	29,448
Western Irrigation District.....	50,000	12,000
Eastern Irrigation District.....	250,000	189,761
Bow River Development—		
Federal.....	94,783	66,117
Provincial.....	35,217	5,275
Mountain View Irrigation District.....	3,600	2,789
Leavitt Irrigation District.....	4,631	1,542
Aetna Irrigation District.....	8,303	440
United Irrigation District.....	34,005	16,536
Lethbridge Northern Irrigation District.....	96,135	71,006
Ross Creek Irrigation District.....	2,069	405
Macleod Irrigation District.....	3,000	—
Totals.....	960,647	545,348

British Columbia.*—About 20 p.c. of the arable land in British Columbia is under cultivation and nearly all the grazing area is being utilized. The 1,300,000 acres of improved land give a ratio of approximately one acre per person. Within this arable area there exist an estimated 218,000 acres of irrigated land, and the total additional acreage of irrigable land in British Columbia is estimated at 400,000 acres. About three-quarters of the irrigated area is made up of individual projects and the other quarter is served by the larger irrigation projects listed in Table 5.

* Revised by the Comptroller of Water Rights, British Columbia Department of Lands and Forests.

5.—Major Irrigation Projects in British Columbia, January 1962

Project	Water Supply	Potential Irrigable Area	Irrigated Area	Water Service Charge on Grade A Land per Acre	Locality
		acres	acres	\$	
Provincial Irrigation System—					
Southern Okanagan Lands Project.....	Okanagan River.....	7,770	4,770	12.50	Okanagan Valley
Municipal Irrigation Systems—					
Penticton Municipality...	Penticton and Ellis Creeks..	2,067	1,967	24.00/20.00	Okanagan Valley
Summerland Municipality.	Trout and Eneas Creeks....	3,448	3,405	14.86	"
Irrigation Districts—					
Bankhead.....	Kelowna and Mission Creeks	85	85	24.50	Okanagan Valley
Barriere.....	Barriere River.....	181	129	4.50	North Thompson Valley
B.C. Fruitlands.....	Jameson and North Thompson Rivers.....	2,200	1,730	16.20	"
Black Mountain.....	Mission Creek.....	4,264	3,693	15.00	Okanagan Valley
Black Sage.....	Okanagan River.....	184	174	17.00	"
Blueberry Creek.....	Blueberry Creek.....	132	66	15.00	Columbia Valley
Boundary Line.....	Osoyoos Lake.....	94	94	15.93	Okanagan Valley
Brent Davis.....	Mission Creek.....	469	416	5.00	"
Castwon Benches.....	Similkameen River.....	650	500	14.00	Similkameen Valley
Chase.....	Chase Creek.....	639	639	3.50	South Thompson Valley
Covert.....	4th of July and Gibbs Creeks	280	280	8.00	Kettle Valley
East Creston.....	Arrow Creek.....	1,415	1,220	5.00	Kootenay Valley
East Osoyoos.....	Haynes Creek and Osoyoos Lake.....	180	152	36.50	Okanagan Valley
Ellison.....	Kelowna Creek.....	760	662	6.95	"
Erickson.....	Sullivan Creek.....	95	95	5.00	Kootenay Valley
Fairview Heights.....	Similkameen River.....	628	628	28.00	Similkameen Valley
Glenmore.....	Kelowna Creek and Okanagan Lake.....	1,895	1,847	13.00	Okanagan Valley
Grand Forks.....	Kettle River.....	2,500	2,328	6.00	Kettle Valley
Heffley.....	North Thompson River....	1,653	1,653	2.64	North Thompson Valley
Kaleden.....	Marron River and Shatford and Shingle Creeks.....	542	542	18.00	Okanagan Valley
Keremeos.....	Asnola and Similkameen Rivers.....	1,022	1,022	16.00	Similkameen Valley
Lakeview.....	Lambly (Bear) Creek.....	1,100	1,056	11.00	Okanagan Valley
Malcolm Horie.....	Joseph Creek.....	150	150	7.50	Kootenay Valley
Naramata.....	Naramata, Lequime and Robinson Creeks.....	1,024	969	24.75	Okanagan Valley
North Canyon.....	Camp Run (Association) Creek.....	390	350	1.50	Kootenay Valley
Okanagan Falls.....	Okanagan River.....	233	171	17.00/22.00	Okanagan Valley
Okanagan Mission.....	Bellevue Creek and Okanagan Lake.....	530	530	21.00	"
Osoyoos.....	Haynes, Long Joe and Nine-mile Creeks, and Osoyoos Lake.....	243	234	25.00	"
Oyama.....	Wood and Kalamalka Lakes	362	362	22.00	"
Peachland.....	Peachland Creek.....	550	444	13.00	"
Renata.....	Dog Creek.....	122	122	7.00	Columbia Valley
Robson.....	Norns (Pass) Creek.....	262	250	6.00	"
Scotty Creek.....	Scotty Creek.....	844	844	4.50	Okanagan Valley
Shuttleworth Creek.....	Shuttleworth Creek.....	282	109	8.00	"
South East Kelowna.....	Hydraulic and Klo Creeks..	3,093	3,093	21.00	"
South Vernon.....	Vernon Creek.....	354	251	5.00	"
Todd Hill.....	South Thompson River....	146	118	15.00	South Thompson Valley
Trout Creek.....	Trout Creek.....	318	278	10.00	Okanagan Valley
Vermilion.....	Kindersley Creek.....	300	300	6.25	Columbia Valley
Vernon.....	Coldstream Creek.....	8,023	6,668	5.00	Okanagan Valley
Vinsulla.....	Knouff Creek.....	298	160	—	North Thompson Valley

5.—Major Irrigation Projects in British Columbia, January 1962—concluded

Project	Water Supply	Potential Irrigable Area	Irrigated Area	Water Service Charge on Grade A Land per Acre	Locality
		acres	acres	\$	
Irrigation Districts—concl.					
Westbank.....	Powers Creek.....	1,000	823	15.30	Okanagan Valley
West Bench.....	Okanagan River.....	265	210	45.00	"
Wilmer.....	Wilmer and Bruce Creeks...	241	109	6.00	Columbia Valley
Winfield and Okanagan Centre.....	Vernon Creek.....	1,898	1,843	6.00	Okanagan Valley
Wyndel.....	Duck Creek.....	498	410	4.00	Kootenay Valley
Irrigation Companies—					
Wood Lake Water Com- pany.....	Oyama Creek.....	832	832	7.50	Okanagan Valley

Section 4.—Statistics of Agriculture*

The collection, compilation and publication of statistics relating to agriculture is a responsibility of the Dominion Bureau of Statistics. Valuable information obtained through the Censuses of Canada and partial-coverage surveys may be obtained in reports issued by the Bureau.†

The Bureau also collects and publishes primary and secondary statistics of agriculture on an annual and monthly basis. The primary statistics relate mainly to the reporting of crop conditions, crop and livestock estimates, wages of farm labour and prices received by farmers for their products. The secondary statistics relate to farm income and expenditure, per capita food consumption, marketing of grain and livestock, dairying, milling and sugar industries and cold storage holdings. In the collection of annual and monthly statistics, the federal Department of Agriculture and various provincial departments, as well as such agencies as the Board of Grain Commissioners and the Canadian Wheat Board, co-operate with the Bureau. Many thousands of farmers throughout Canada send in reports voluntarily and dealers and processors also provide much valuable data. The figures contained in this Section do not include estimates for Newfoundland. Agriculture plays a relatively minor part in Newfoundland's economy, commercial production of most agricultural products being quite small.

In the following Subsections details are given for 1961 where available at the time of going to press; elsewhere 1960 figures are given. Figures for both years are subject to revision.

The upward trend in Canadian economic activity was resumed in 1961 after the easing in 1960 which occurred as a result of weaknesses in business outlays for new plant and equipment, housing construction, and consumer purchases of durable goods other than automobiles. A reversal of these trends to a large extent in 1961, together with rising exports, a build-up of business inventories and continued government outlays for new goods and services provided a gross national product of \$36,800,000,000 for 1961 as a whole, 2.5 p.c. above the previous year in value terms, and almost 2 p.c. higher in terms of physical volume of output. These gains were partially offset by a substantial reduction in crop production in the Prairie Provinces, estimated to have been lower than in 1960 by about \$400,000,000. Trade in agricultural products reached new levels during the year with substantial contributions being made by special sales of wheat to Eastern Europe and mainland China.

* Revised in the Agriculture Division, Dominion Bureau of Statistics.

† Available from the Dominion Bureau of Statistics or the Queen's Printer, Ottawa.

Estimates place farm net income for 1961 at \$1,006,000,000, about 24 p.c. below the estimate of \$1,358,400,000 for 1960, and the lowest since 1957 when total farm net income was estimated at \$1,058,300,000. Although farm cash income from farm operations reached an all-time high, farm operating expenses continued to rise and farm inventories of grains dropped drastically as a result of the significant decline in crop production in Western Canada.

Subsection 1.—Cash Income from the Sale of Farm Products, 1960

During 1960, Canadian farmers received \$2,783,000,000 from the sale of farm products, participation payments on previous years' grain crops, net cash advances on farm-stored grains, and deficiency payments made under the farm prices support program. This was less than 1 p.c. below the figure of \$2,789,300,000 for 1959.

On a commodity basis, the more important reductions in farm cash income during 1960, relative to 1959, were recorded for barley, flaxseed and hogs. On the other hand, the more important gains were realized from the sale of wheat, potatoes, fruits, vegetables, tobacco, cattle and dairy products, and from a substantial increase in cash advances on farm-stored grains in Western Canada. In addition to the cash returns, farmers in the Prairie Provinces received about \$77,000,000 under the provisions of the Prairie Farm Assistance Act, the Western Grain Producers' Acreage Payment Regulations and the federal-provincial emergency unthreshed grain assistance policy; in the previous year, farmers received approximately \$22,000,000, most of it under the provisions of the Prairie Farm Assistance Act. When these payments are added to the cash returns from sales, cash advances on farm-stored grains, and participation and deficiency payments, total cash returns to farmers from their farming operations amounted to \$2,860,200,000 as compared with \$2,811,400,000 in 1959.

Field Crops.—Farmers' cash returns from the sale of field crops were estimated at \$1,056,400,000 for 1960, slightly more than 3 p.c. above the estimate of \$1,023,500,000 for 1959. Contributing most to this gain was higher income from the sale of wheat, potatoes, vegetables, fruits, tobacco and a substantial increase in cash advances on farm-stored grains in Western Canada. A somewhat smaller contribution was made by oats. Higher marketings of wheat and oats more than offset slightly lower average prices; heavier marketings and a substantial gain in average prices increased the income from the sale of potatoes; and a record crop of tobacco in Ontario was reflected in higher returns to farmers from this crop. Partially offsetting these increases was a significant drop in returns from the sale of barley resulting entirely from reduced marketings. More moderate declines were noted for flaxseed and rye, as well as for the participation payments made by the Canadian Wheat Board.

Livestock and Livestock Products.—Estimated at \$1,681,500,000, farmers' income from the sale of livestock and livestock products during 1960 was about 2.5 p.c. below the 1959 level of \$1,726,500,000, attributed entirely to reduced returns from the sale of hogs, eggs and poultry. The average price of hogs for the year 1960 was virtually unchanged from that of the previous year but marketings were down substantially; egg prices averaged slightly higher than in 1959 but marketings were smaller; and production of poultry meat declined more than enough to offset fractionally higher prices for fowl and chickens and substantially higher prices for turkeys.

Returns from cattle and calves in 1960 were estimated at \$561,400,000, nearly \$10,000,000 more than in 1959; although average prices were below the 1959 levels, marketings were up. Prices of dairy products were down slightly but production was up sufficiently to provide a total cash income from this item of \$518,900,000 as against \$514,200,000 for 1959.

6.—Cash Income from the Sale of Farm Products, 1958-60

Item	1958*	1959*	1960
	\$'000	\$'000	\$'000
Grains, Seeds and Hay	692,579	717,262	714,803
Wheat.....	437,053	435,260	443,012
Wheat participation payments.....	64,258	72,662	70,640
Oats.....	28,787	22,887	24,218
Oats participation payments.....	—	2,072	3,153
Barley.....	79,997	86,833	69,575
Barley participation payments.....	7,570	6,121	5,335
Canadian Wheat Board net cash advance payments.....	—3,400	2,472	21,040
Rye.....	5,556	5,175	4,412
Flaxseed.....	36,179	49,671	42,581
Corn.....	23,157	22,200	22,103
Clover and grass seed.....	12,300	10,681	7,399
Hay and clover.....	1,122	1,228	1,335
Vegetables and Other Field Crops	213,472	216,141	243,639
Potatoes.....	42,067	43,843	58,889
Vegetables.....	70,390	69,367	74,303
Sugar beets.....	17,365	13,004	12,808
Tobacco.....	83,650	89,927	97,639
Livestock and Poultry	1,080,511	1,045,192	994,620
Cattle and calves.....	595,313	551,731	561,413
Sheep and lambs.....	10,679	10,626	11,255
Hogs.....	325,094	345,034	287,502
Poultry.....	149,425	137,801	134,450
Dairy Products	495,565	514,208	518,887
Fruits	44,678	43,113	50,803
Other Principal Farm Products	162,744	154,292	153,354
Eggs.....	149,086	139,782	137,484
Wool.....	2,926	2,840	3,043
Honey.....	5,025	5,249	5,438
Maple products.....	5,707	6,421	7,389
Miscellaneous Farm Products	53,089	53,208	53,235
Forest Products	36,246	32,901	32,842
Fur Farming	15,731	13,031	16,000
Deficiency Payments—			
Eggs.....	—	—	2,063
Sugar beets.....	—	—	2,707
Totals, Cash Income from Farm Products	2,794,615	2,789,348	2,782,953
Supplementary Payments	60,128	22,087	77,204
Totals, Cash Income	2,854,743	2,811,435	2,860,157

7.—Cash Income from the Sale of Farm Products, by Province, 1958-60

Province	1958 ^r	1959 ^r	1960
	\$'000	\$'000	\$'000
Prince Edward Island.....	27,773	28,309	29,220
Nova Scotia.....	41,738	42,618	43,176
New Brunswick.....	45,703	43,844	47,597
Quebec.....	420,989	419,937	414,556
Ontario.....	854,807	857,272	877,069
Manitoba.....	223,144	230,220	223,071
Saskatchewan.....	573,654	563,873	546,178
Alberta.....	484,381	480,018	474,870
British Columbia.....	122,426	123,257	127,216
Totals.....	2,794,615	2,789,348	2,782,953

Net Income of Farm Operators from Farming Operations.—Two concepts are used in preparing estimates of farm net income from farming operations. One is called *realized net income* and is obtained by adding together cash income from the sale of farm products, supplementary payments and the value of income in kind, and deducting farm operating expenses and depreciation charges. The other is referred to as *total net income* and is obtained by adjusting realized net income to take into account changes occurring in inventories of livestock and stocks of grains on farms between the beginning and end of the year.

Realized Farm Net Income.—For 1960, the realized net income of Canadian farmers from farming operations was estimated at \$1,322,300,000, 3.6 p.c. above the estimate of \$1,275,800,000 and 6.8 p.c. above the average level of \$1,238,200,000 established for the five-year period 1955-59. Although cash income was down slightly between 1959 and 1960 and operating expenses and depreciation charges were fractionally higher, this was more than offset by a small gain in income in kind and a substantial increase in supplementary payments to farmers in the Prairie Provinces. Quebec was the only province for which a decline in realized farm net income was recorded. Increases of less than 1 p.c. occurred in Nova Scotia, Manitoba and Saskatchewan and for the other provinces ranged from 3 p.c. in Alberta to about 18 p.c. in New Brunswick.

Total Farm Net Income.—Taking into account changes in farm-held inventories of grains and livestock, total farm net income for 1960 was estimated at \$1,358,400,000, 12.6 p.c. above the estimate of \$1,206,300,000 for 1959 and 7.0 p.c. above the average of approximately \$1,270,000,000 for the 1955-59 period.

8.—Net Income of Farm Operators from Farming Operations, 1958-60

(Exclusive of Newfoundland)

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act, payments under the Western Grain Producers' Acreage Payment Regulations and, in 1960, payments under the federal-provincial unthreshed grain assistance policy.

Item	1958 ^r	1959 ^r	1960
	\$'000	\$'000	\$'000
1. Cash income.....	2,794,615	2,789,348	2,782,953
2. Income in kind.....	340,665	344,165	350,157
3. Supplementary payments.....	60,128	22,087	77,204
4. Realized gross income (Items 1+2+3).....	3,195,408	3,155,600	3,210,314
5. Operating and depreciation charges.....	1,793,190	1,879,771	1,887,998
6. Realized net income (Items 4-5).....	1,402,218	1,275,829	1,322,316
7. Value of inventory changes.....	-64,619	-69,504	36,111
8. Total gross income (Items 4+7).....	3,130,789	3,086,096	3,246,425
Totals, Net Income (Items 8-5).....	1,337,599	1,206,325	1,358,427

9.—Net Income of Farm Operators from Farming Operations, by Province, 1958-60

NOTE. Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act, payments under the Western Grain Producers' Acreage Payment Regulations and, in 1960, payments under the federal-provincial unthreshed grain assistance policy.

Province	1958 ^r	1959 ^r	1960
	\$'000	\$'000	\$'000
Newfoundland.....	—	—	—
Prince Edward Island.....	12,379	11,813	13,740
Nova Scotia.....	15,101	14,017	14,633
New Brunswick.....	19,659	16,933	20,869
Quebec.....	203,699	189,728	191,252
Ontario.....	383,002	314,609	351,873
Manitoba.....	136,181	113,200	111,200
Saskatchewan.....	245,085	247,855	356,075
Alberta.....	264,086	243,431	241,484
British Columbia.....	58,407	54,739	57,301
Totals.....	1,337,599	1,206,325	1,358,427

Subsection 2.—Volume of Agricultural Production

Canada's index of physical volume of agricultural production was estimated at 156.2 (1935-39=100) for 1960, which was 7.6 p.c. above the index of 145.1 for 1959 and 5 p.c. above the five-year average (1955-59) of 148.8; the all-time high of 169.5 was established in 1956. Although the production of livestock in 1960 was below the 1959 level, this decline was more than offset by increased production of grains, potatoes, tobacco and maple products. The output of dairy and poultry products remained almost unchanged.

For the Provinces of Prince Edward Island and Nova Scotia the change in production between 1959 and 1960 was less than 1 p.c.; increases of between 2 p.c. and 3 p.c. occurred in New Brunswick, Quebec and British Columbia, and a gain of slightly more than 6 p.c. was recorded for Ontario. Total agricultural output in Saskatchewan increased by nearly 30 p.c., the greatest gain for any of the provinces, but production in Alberta and Manitoba was down by approximately 4 p.c. and 5 p.c., respectively.

10.—Index Numbers of Physical Volume of Agricultural Production, by Province, 1951-60

(1935-39=100. Exclusive of Newfoundland)

NOTE. For a description of this index, methods and coverage, see *DBS Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003) for April-June, 1952. Figures for 1935-44 are given in the 1950 Year Book, p. 420, and for 1945-50 in the 1956 edition, p. 423.

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
1951.....	119.5	87.7	110.4	139.0	128.6	146.4	218.1	157.1	126.9	154.7
1952.....	142.3	80.6	109.4	124.7	119.6	164.6	267.4	174.8	133.3	166.2
1953.....	142.8	80.6	121.6	132.9	129.5	131.3	237.5	158.6	136.3	157.9
1954.....	150.3	88.7	114.1	129.8	129.1	102.1	108.8	119.4	131.4	119.7
1955.....	150.0	93.3	135.9	143.8	129.6	127.3	210.8	141.2	131.2	150.4
1956.....	139.6	94.5	127.5	138.4	137.5	171.5	251.4	168.7	127.8	169.5
1957.....	161.8	93.6	126.7	132.9	142.7	126.1	141.1	118.8	143.7	133.9
1958 ^r	154.7	88.6	118.2	139.0	158.5	159.7	144.5	132.4	145.1	145.3
1959 ^r	138.5	94.3	114.4	138.5	145.9	153.1	156.4	140.5	146.9	145.1
1960.....	138.8	93.5	117.0	142.4	154.9	144.9	202.0	134.5	150.0	156.2

Subsection 3.—Field Crops

There were marked regional contrasts in crop-growing conditions throughout Canada during 1961. Crops in the Prairie Provinces turned out only fair to poor, with many areas experiencing complete failures, while in Eastern Canada outturns were good to excellent with a number of crops in Ontario establishing record high yields per acre. The prairies received enough moisture to produce crops equal to the recent 10-year average in 1960, but rainfall during the fall months was light. Generally cool spring weather in 1961 accompanied by rain and snow provided adequate moisture to germinate crops but dry conditions and above-average temperatures appeared in early June and continued with little respite during July and August. Conditions generally were the worst in Saskatchewan and Manitoba. Much of the northern half of Alberta and parts of the southwest received rains in time to produce fair to good crops, but in the southeast corner most crops were a failure. As a result, average yields of wheat were reduced to half those of the preceding year.

Growing conditions during the late summer months were nearly ideal over most of Ontario and western Quebec. Ample rainfall and adequate heat caused rank crop development and many farmers experienced difficulty with lodging of small grains, but grass and fodder crops made excellent growth and good crops of corn and soybeans were produced. Summer drought retarded crop development in much of eastern Quebec and the Maritimes resulting in outturns a little below average. Most of British Columbia experienced good growing and harvesting conditions.

After registering declines in the two preceding years, total supplies of the five major grains increased again in 1960-61. Farmers' marketings of wheat, oats, barley, rye and flaxseed amounted to 546,606,000 bu. representing a rise of 6 p.c. over the 1959-60 total of 516,695,000 bu. The 1960-61 deliveries, however, were considerably short of the record 1952-53 crop year total of 844,855,000 bu. and 9 p.c. less than the ten-year (1949-50—1958-59) average of 602,405,000 bu. Exports of the same five grains, combined with their respective milled and processed products, reached 419,324,000 bu., an increase of 15 p.c. over the 1959-60 total of 364,136,000 bu. and 1 p.c. higher than the ten-year average of 414,200,000 bu. In addition to exports, disappearance of these grains into domestic channels in 1960-61 was estimated at some 785,687,000 bu. compared with 765,964,000 bu. in the preceding year. The combined effect of expanded exports and domestic requirements more than offset a larger total supply and, as a result, carryover stocks were down from 763,513,000 bu. at July 31, 1960 to 744,486,000 bu. at the same date of 1961. Production of wheat, oats, barley, rye and flaxseed in the 1961 season, reflecting the severe drought conditions of the mid-west, was estimated at 740,304,000 bu., a decrease of 38 p.c. from the production of the previous year. Thus, with declines recorded for both carryover and production, total domestic supplies of the five grains for 1961-62 declined to 1,484,800,000 bu. from 1,949,500,000 bu. in 1960-61.

The potato crop totalled 45,300,000 cwt. in 1961 compared with 45,500,000 cwt. in 1960, a 6-p.c. increase in acreage being nearly offset by a similar decrease in average yield per acre. Ontario became established as the largest potato-growing province and average yields per acre in that province, at a record 188.4 cwt., were the highest in Canada.

The rapeseed crop largely escaped the effects of the drought, being produced mainly in the more favoured areas of northern Alberta and Saskatchewan, and established a new record in 1961 of 558,000,000 lb. compared with 556,000,000 lb. in the previous year and the 1955-59 average of 275,400,000 lb. The soybean crop, most of which is grown in Ontario, established new production and yield-per-acre records in 1961. The total of 8,700,000 bu. produced was 53 p.c. higher than the 1960 total of 5,700,000 bu. and an average yield per acre of 31.8 bu. compared with 22.1 bu. in 1960. Production of tame hay and fodder corn at 25,700,000 tons also reached a new high in 1961 but supplies were distributed unevenly, Eastern Canada harvesting record crops while the prairie region suffered from shortages.

11.—Acreages, Yields and Prices of Principal Field Crops 1960 and 1961, with Average for 1955-59

(Exclusive of Newfoundland)

Crop and Year	Area	Yield per Acre	Pro-duction	Average Price	Total Value ¹	Crop and Year	Area	Yield per Acre	Pro-duction	Average Price	Total Value ¹
	'000 acres	bu.	'000 bu.	\$ per bu.	\$'000		'000 acres	bu.	'000 bu.	\$ per bu.	\$'000
Wheat—						Mixed Grains—					
Av. 1955-59.	22,104	20.4	452,595	1.31	590,957	Av. 1955-59.	1,527	42.7	64,923	0.81	52,919
1960.....	23,198	21.1	489,624	1.57	767,667	1960.....	1,381	43.2	59,711	0.84	50,111
1961.....	23,792	11.0	261,679	2	2	1961.....	1,563	39.6	61,947	2	2
Oats—						Flaxseed—					
Av. 1955-59.	11,222	37.8	424,690	0.63	266,108	Av. 1955-59.	2,627	8.8	22,729	2.71	60,980
1960.....	11,147	40.9	456,134	0.67	304,201	1960.....	2,577	8.9	23,020	2.75	63,359
1961.....	11,583	28.8	333,907	2	2	1961.....	2,363	6.5	15,322	2	2
Barley—						Potatoes—					
Av. 1955-59.	9,103	26.7	241,295	0.79	190,159	Av. 1955-59.	309	cwt.	40,655	1.95	78,461
1960.....	7,360	28.1	207,036	0.80	166,001	1960.....	314	144.8	45,490	2.01	91,417
1961.....	6,090	20.2	123,167	2	2	1961.....	332	136.6	45,298	2	2
Rye—						Tame Hay—					
Av. 1955-59.	576	16.1	9,393	0.92	8,627	Av. 1955-59.	11,294	ton	19,461	15.31	297,703
1960.....	543	18.6	10,125	0.88	8,893	1960.....	12,176	1.73	21,762	14.78	321,534
1961.....	520	12.0	6,229	2	2	1961.....	12,316	1.73	21,358	2	2

¹ Gross value of farm production; does not represent cash income from sales.
going to press; will be published in one of the regularly scheduled crop reports and in the *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003).

² Not available at time of

12.—Acreages, Production and Values of Principal Field Crops, by Province, 1960 and 1961, with Average for 1955-59

(Exclusive of Newfoundland)

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1960	1961	Average 1955-59	1960	1961	Average 1955-59	1960
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
Wheat	22,104	23,198	23,792	452,595	489,624	261,679	590,957	767,667
Prince Edward Island...	3	3	3	87	84	75	145	137
Nova Scotia.....	1	1	1	19	13	15	31	22
New Brunswick.....	2	2	2	59	55	45	99	93
Quebec.....	14	10	8	330	254	198	533	409
Ontario—								
Winter.....	560	525	550	19,182	17,570	19,525	26,540	25,301
Spring.....	18	17	14	397	398	321	547	545
Manitoba.....	2,285	2,659	2,765	53,000	62,000	32,000	71,760	99,820
Saskatchewan.....	14,004	14,871	15,093	264,200	308,000	124,000	345,572	436,640
Alberta.....	5,166	5,060	5,304	114,200	100,000	84,000	144,300	153,000
British Columbia.....	50	50	53	1,121	1,250	1,500	1,431	1,700
Oats	11,222	11,147	11,583	424,690	456,134	333,907	266,108	304,201
Prince Edward Island...	96	105	108	4,167	5,100	5,000	3,094	3,927
Nova Scotia.....	42	36	38	1,891	1,700	1,600	1,756	1,598
New Brunswick.....	127	118	120	5,270	5,400	4,700	4,071	4,266
Quebec.....	1,282	1,335	1,344	44,966	58,340	52,147	38,340	50,172
Ontario.....	1,644	1,557	1,600	78,756	77,694	80,160	57,774	59,047
Manitoba.....	1,756	1,831	2,013	64,200	68,000	37,000	36,528	42,160
Saskatchewan.....	3,381	3,352	3,434	111,400	126,000	44,000	61,260	74,340
Alberta.....	2,807	2,730	2,842	109,800	110,000	105,000	60,702	66,000
British Columbia.....	89	83	84	4,240	3,900	4,300	2,583	2,691

¹ Values for 1961 not available at time of going to press—see footnote 2, Table 11.

12.—Acreages, Production and Values of Principal Field Crops, by Province, 1960 and 1961, with Average for 1955-59—continued

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1960	1961	Average 1955-59	1960	1961	Average 1955-59	1960
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
Barley	9,103	7,360	6,090	241,295	207,036	123,167	190,159	166,001
Prince Edward Island	1	1	1	36	25	26	37	28
Nova Scotia	2	1	1	53	34	37	59	39
New Brunswick	5	3	3	144	107	92	153	119
Quebec	28	19	14	844	707	508	945	806
Ontario	104	87	84	3,957	3,460	3,604	4,003	3,425
Manitoba	1,655	1,071	795	38,800	28,000	11,000	32,510	23,520
Saskatchewan	3,550	2,635	2,034	88,800	73,000	22,000	69,346	57,670
Alberta	3,696	3,490	3,107	106,800	100,000	84,000	81,710	79,000
British Columbia	64	54	51	1,862	1,700	1,900	1,397	1,394
Fall Rye	429	442	426	7,403	8,575	5,546	6,854	7,595
Quebec	8	9	10	182	214	216	214	244
Ontario	81	83	79	1,831	1,925	1,943	1,905	1,945
Manitoba	69	79	76	1,270	1,600	850	1,148	1,392
Saskatchewan	191	190	167	2,670	3,300	1,200	2,372	2,772
Alberta	78	80	92	1,412	1,500	1,300	1,185	1,215
British Columbia	1	1	1	38	35	37	29	27
Spring Rye	147	101	94	1,990	1,550	683	1,773	1,298
Manitoba	8	6	4	112	100	33	102	87
Saskatchewan	114	75	68	1,520	1,200	450	1,365	1,008
Alberta	25	20	23	358	250	200	306	203
All Rye	576	543	520	9,393	10,125	6,229	8,627	8,893
Quebec	8	9	10	182	214	216	214	244
Ontario	81	83	79	1,831	1,926	1,943	1,905	1,945
Manitoba	77	85	80	1,382	1,700	883	1,250	1,479
Saskatchewan	305	265	234	4,190	4,500	1,650	3,737	3,780
Alberta	103	100	115	1,770	1,750	1,500	1,491	1,418
British Columbia	1	1	1	38	35	37	29	27
Peas	76	54	65	1,273	993	1,048	2,759	2,164
Quebec	4	3	3	59	55	48	231	228
Ontario	8	6	6	137	127	120	336	298
Manitoba	49	30	38	720	560	570	1,229	1,120
Saskatchewan	3	3	3	46	75	48	107	131
Alberta	8	6	12	179	82	174	499	180
British Columbia	6	5	4	133	94	88	357	207
Beans	68	67	67	1,170	1,012	1,349	4,432	3,899
Quebec	1	1	1	24	22	16	102	97
Ontario	66	66	66	1,146	990	1,333	4,330	3,802
Soybeans	248	256	272	6,256	5,675	8,656	12,379	11,521
Ontario	245	256	272	6,220	5,669	8,650	12,307	11,508
Manitoba	4	1	1	45	6	6	91	13
Buckwheat	118	85	78	2,313	1,835	1,485	2,576	2,033
New Brunswick	5	4	3	144	145	90	164	168
Quebec	40	26	22	958	640	555	1,184	742
Ontario	35	30	23	774	660	515	839	733
Manitoba	38	25	30	438	390	325	389	390
Mixed Grains	1,527	1,381	1,563	64,923	59,711	61,947	52,919	50,111
Prince Edward Island	56	47	45	2,467	2,400	2,200	2,165	2,016
Nova Scotia	11	11	11	460	510	479	468	536
New Brunswick	6	5	5	235	240	210	217	228
Quebec	191	145	164	6,855	6,206	6,494	7,398	6,640
Ontario	902	670	735	43,427	33,728	38,514	35,003	28,669
Manitoba	88	145	181	2,673	4,600	3,300	1,833	3,450
Saskatchewan	61	80	102	1,575	2,300	1,100	1,051	1,541
Alberta	209	275	316	7,057	9,600	9,500	4,647	6,912
British Columbia	4	3	3	174	127	150	138	119
Flaxseed	2,627	2,577	2,363	22,729	23,020	15,322	60,980	63,359
Ontario	13	9	11	171	193	182	464	535
Manitoba	662	707	728	5,040	6,400	4,500	13,604	17,600
Saskatchewan	1,447	1,250	1,162	11,789	10,750	5,800	31,419	29,670
Alberta	493	600	450	5,620	5,580	4,700	15,184	15,289
British Columbia	11	11	12	118	97	140	309	265

¹ Values for 1961 not available at time of going to press—see footnote 2, Table 11.

12.—Acreages, Production and Values of Principal Field Crops, by Province, 1960 and 1961, with Average for 1955-59—concluded

Field Crop and Province	Area			Total Production			Gross Farm Value ¹	
	Average 1955-59	1960	1961	Average 1955-59	1960	1961	Average 1955-59	1960
	'000 acres	'000 acres	'000 acres	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000
Sunflower Seed	35	26	25	21,625	22,000	20,000	914	939
Manitoba.....	31	19	21	17,670	15,200	16,800	784	684
Alberta.....	—	6	4	—	6,800	3,200	—	255
Rapeseed	389	763	745	275,378	556,000	558,000	8,774	18,116
Manitoba.....	19	33	31	13,498	24,000	17,000	458	960
Saskatchewan.....	328	550	448	231,066	400,000	291,000	7,349	12,800
Alberta.....	42	180	266	30,814	132,000	250,000	967	4,356
Mustard Seed	95	131	142	74,493	57,715	45,300	2,812	2,169
Manitoba.....	²	²	12	—	315	4,600	—	15
Saskatchewan.....	—	16	55	—	7,400	23,100	—	204
Alberta.....	95	115	75	74,493	50,000	17,600	2,812	1,950
				'000 bu.	'000 bu.	'000 bu.		
Shelled Corn	516	514	510	30,780	29,337	36,988	35,623	36,036
Ontario.....	507	504	500	30,539	29,012	36,700	35,353	35,685
Manitoba.....	9	10	10	241	325	288	270	351
				'000 cwt.	'000 cwt.	'000 cwt.		
Potatoes	309	314	332	40,685	45,490	45,298	78,461	91,417
Prince Edward Island...	44	45	45	7,534	7,200	7,000	11,750	10,656
Nova Scotia.....	10	9	10	1,475	1,120	1,287	2,962	2,531
New Brunswick.....	46	50	54	8,662	8,700	8,800	12,988	12,615
Quebec.....	94	81	85	9,944	10,423	10,108	20,742	22,305
Ontario.....	55	61	64	7,294	10,687	12,058	15,962	25,827
Manitoba.....	16	17	21	1,274	1,530	800	2,504	2,448
Saskatchewan.....	15	20	20	942	1,300	600	2,455	2,990
Alberta.....	18	20	21	1,683	2,430	2,545	3,738	5,346
British Columbia.....	10	11	11	1,878	2,100	2,100	5,360	6,699
				'000 tons	'000 tons	'000 tons		
Field Roots	36	27	27	393	263	281	8,444	5,622
Prince Edward Island...	6	4	4	83	45	46	1,412	900
Nova Scotia.....	3	2	2	51	30	28	1,284	578
New Brunswick.....	3	2	2	32	18	19	804	342
Quebec.....	9	5	6	67	41	45	1,776	861
Ontario.....	15	13	12	160	129	143	3,168	2,941
Tame Hay	11,294	12,176	12,316	19,461	21,762	21,358	297,703	321,534
Prince Edward Island...	208	204	203	366	380	375	4,741	4,845
Nova Scotia.....	312	305	297	646	645	650	11,074	9,836
New Brunswick.....	391	365	360	727	685	684	10,304	9,590
Quebec.....	3,500	3,547	3,458	6,022	5,711	6,363	93,104	91,376
Ontario.....	3,278	3,400	3,400	6,233	7,321	7,956	90,040	95,173
Manitoba.....	702	870	922	1,222	1,500	830	14,485	19,350
Saskatchewan.....	723	895	934	943	1,400	620	13,776	20,384
Alberta.....	1,829	2,200	2,340	2,521	3,200	3,000	41,202	51,200
British Columbia.....	351	390	402	777	920	880	18,978	19,780
Fodder Corn	376	370	391	3,646	3,352	4,328	17,382	15,831
Quebec.....	68	55	58	634	552	617	4,049	3,560
Ontario.....	282	282	287	2,854	2,598	3,501	12,409	10,808
Manitoba.....	21	27	40	108	143	160	708	1,001
Saskatchewan.....	2	3	3	5	9	3	68	122
British Columbia.....	3	3	3	44	50	47	349	340
Sugar Beets	87	86	85	1,098	1,098	1,106	15,521	15,778
Quebec.....	6	5	8	68	83	113	953	1,198
Ontario.....	24	14	16	329	212	279	3,998	2,929
Manitoba.....	21	25	21	208	258	188	2,918	3,549
Alberta.....	37	41	40	493	546	525	7,652	8,102

¹ Values for 1961 not available at time of going to press—see footnote 2, Table 11.² Fewer than 500 acres.

13.—Acreages and Production of Grain in the Prairie Provinces, 1955-61

Grain	1955	1956	1957	1958	1959	1960	1961
ACREAGES							
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres
Wheat.....	21,964	22,064	20,446	20,244	22,557	22,590	23,162
Oats.....	7,788	8,658	7,805	7,584	7,882	7,913	8,289
Barley.....	9,638	8,181	9,209	9,369	8,107	7,196	5,936
Rye.....	665	452	455	419	435	450	429
Flaxseed.....	1,809	3,010	3,462	2,602	2,130	2,557	2,340
PRODUCTION							
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
Wheat.....	497,000	551,000	364,000	346,000	399,000	470,000	240,000
Oats.....	290,000	400,000	234,000	240,000	263,000	304,000	186,000
Barley.....	244,000	262,000	209,000	238,000	219,000	201,000	117,000
Rye.....	12,300	6,350	6,300	5,400	6,360	7,950	4,033
Flaxseed.....	18,700	34,600	18,900	22,500	17,500	22,730	15,000

Stocks of Grain in Canada.—Table 14 shows the stocks of Canadian grain on hand in Canada and in the United States on July 31 for the years 1960 and 1961, with averages for the five-year periods 1950-54 and 1955-59. Stocks in Canada are separated into those in commercial positions and those on farms. Stocks on farms and in country elevators in the Prairie Provinces are given separately.

14.—Carryover of Canadian Grain as at July 31, 1960 and 1961, with Averages for 1950-54 and 1955-59

NOTE.—Figures for individual years before 1960 will be found in the corresponding table of previous editions of the Year Book.

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	bu.	bu.	bu.	bu.	bu.	bu.
Wheat—						
Av. 1950-54.....	304,088,145	303,087,359	227,189,959	75,897,400	73,600,000	113,508,787
Av. 1955-59.....	607,664,667	607,347,244	401,923,244	205,424,000	202,000,000	235,770,759
1960.....	537,588,136	537,588,136	455,888,136	81,700,000	80,000,000	260,945,004
1961.....	526,840,667	526,840,667	437,390,667	89,450,000	87,000,000	244,893,302
Oats—						
Av. 1950-54.....	103,723,676	102,717,439	34,956,239	67,761,200	55,500,000	20,442,787
Av. 1955-59.....	140,636,549	140,451,508	43,511,508	96,940,000	79,200,000	28,289,269
1960.....	92,827,492	92,827,492	20,827,492	72,000,000	48,000,000	15,278,425
1961.....	95,153,740	95,153,740	21,453,740	73,700,000	55,000,000	11,192,401
Barley—						
Av. 1950-54.....	82,186,470	82,028,552	44,888,752	37,139,800	36,200,000	24,153,330
Av. 1955-59.....	118,306,634	118,183,588	60,532,588	57,651,000	55,400,000	37,528,726
1960.....	121,469,650	121,469,650	58,469,650	63,000,000	61,000,000	42,758,000
1961.....	107,557,260	107,557,260	52,457,260	55,100,000	53,000,000	29,376,809
Rye—						
Av. 1950-54.....	11,656,052	11,000,586	6,136,186	4,864,400	4,786,000	2,031,544
Av. 1955-59.....	13,557,828	13,327,663	5,078,663	8,249,000	7,910,000	2,327,160
1960.....	6,753,391	6,581,640	2,781,640	3,800,000	3,600,000	1,864,827
1961.....	7,417,007	7,417,007	4,817,007	2,600,000	2,400,000	1,931,297
Flaxseed—						
Av. 1950-54.....	3,273,720	3,273,720	2,285,920	987,800	965,000	417,047
Av. 1955-59.....	5,068,048	5,068,048	3,752,448	1,315,600	1,296,000	913,866
1960.....	4,874,392	4,874,392	4,064,392	810,000	800,000	1,191,891
1961.....	7,579,801	7,579,801	6,169,801	1,410,000	1,400,000	1,254,024

Subsection 4.—Livestock and Poultry

Livestock.—Greatly increased exports of slaughter and feeder cattle to the United States and an abrupt halt to expansion in hog production were noteworthy features of the livestock situation in 1961. These developments were associated with the change in exchange rates and with the feed supply and price situation resulting from the drought in the Prairie Provinces. The number of cattle in Canada has been increasing quite steadily since 1952 with beef-type cows setting the pace. Further increases of breeding stock took place through 1961 when, particularly in the Prairie Provinces, greater numbers of calves, steers and heifers were sold as a result of drought. Hog production decreased sharply in 1960 from the high output of 1959 but by June of 1961 a marked up-turn in the production cycle was again indicated; numbers on farms were 7 p.c. greater than in 1960 and the spring pig crop was 11 p.c. higher. However, estimated numbers at Dec. 1 and the fall pig crop were only 3 p.c. and 4 p.c. higher, respectively, than in 1960 and sows kept for breeding were so reduced in number that the spring pig crop in 1962 was expected to be about the same as in 1961.

Price movements in 1961 are indicated by the following annual average calculation of prices paid on the Toronto market, with 1960 prices bracketed: good steers, \$22.75 (\$22.65); good feeder steers, \$22.70 (\$22.90); good lambs, \$20.80 (\$21.85); and Grade A hogs, dressed, \$28.30 (\$24.75). The numbers of livestock on farms in the different provinces for 1960 and 1961 are given in Table 15 and the average values per head of farm livestock are given, by province, in Table 16.

15.—Livestock on Farms, by Province, as at June 1, 1960 and 1961

NOTE.—Annual estimates of livestock numbers for 1960 and 1961 are subject to revision based on 1961 census data, which were not available at the time of going to press.

Province and Item	1960 No.	1961 No.	Province and Item	1960 No.	1961 No.
Newfoundland.....	..	..	Manitoba—		
Prince Edward Island—			Horses.....	56,000	52,000
Horses.....	9,100	8,400	Milk cows ¹	211,000	212,000
Milk cows ¹	41,000	41,000	Other cattle.....	700,000	754,000
Other cattle.....	71,000	77,000	Sheep.....	84,000	90,000
Sheep.....	34,000	32,000	Swine.....	380,000	453,000
Swine.....	48,000	56,000	Saskatchewan—		
Nova Scotia—			Horses.....	120,000	109,000
Horses.....	12,100	11,000	Milk cows ¹	245,000	251,000
Milk cows ¹	68,000	67,000	Other cattle.....	1,688,000	1,839,000
Other cattle.....	92,000	96,000	Sheep.....	217,000	203,000
Sheep.....	73,000	66,000	Swine.....	585,000	700,000
Swine.....	52,000	51,000	Alberta—		
New Brunswick—			Horses.....	115,000	107,000
Horses.....	12,800	12,000	Milk cows ¹	277,000	283,000
Milk cows ¹	72,000	70,000	Other cattle.....	2,388,000	2,572,000
Other cattle.....	86,000	85,000	Sheep.....	555,000	554,000
Sheep.....	62,000	54,000	Swine.....	1,385,000	1,540,000
Swine.....	59,000	56,000	British Columbia—		
Quebec —			Horses.....	22,500	23,000
Horses.....	129,000	122,000	Milk cows ¹	94,000	98,000
Milk cows ¹	1,114,000	1,141,000	Other cattle.....	333,000	348,000
Other cattle.....	973,000	974,000	Sheep.....	97,000	94,000
Sheep.....	266,000	225,000	Swine.....	51,000	47,000
Swine.....	1,043,000	1,116,000	Yukon and N.W.T......	..	..
Ontario—			Totals—		
Horses.....	95,000	90,000	Horses.....	571,500	534,400
Milk cows ¹	1,040,000	1,075,000	Milk cows ¹	3,162,000	3,236,000
Other cattle.....	2,008,000	2,135,000	Other cattle.....	8,339,000	8,880,000
Sheep.....	385,000	388,000	Sheep.....	1,773,000	1,706,000
Swine.....	1,880,000	1,870,000	Swine.....	5,483,000	5,889,000

¹ Cows and heifers, two years old or over, kept for milk purposes.

16.—Average Value per Head of Farm Livestock, by Province, 1960 and 1961

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	1960	1961	Province and Item	1960	1961
	\$	\$		\$	\$
Prince Edward Island—			Manitoba—		
Horses.....	124	121	Horses.....	109	115
All cattle.....	118	113	All cattle.....	135	139
Milk cows ¹	180	169	Milk cows ¹	195	201
Other cattle.....	81	83	Other cattle.....	117	121
Sheep.....	15	14	Sheep.....	14	15
Swine.....	25	26	Swine.....	23	24
Nova Scotia—			Saskatchewan—		
Horses.....	142	141	Horses.....	92	95
All cattle.....	122	120	All cattle.....	129	134
Milk cows ¹	172	171	Milk cows ¹	190	198
Other cattle.....	85	85	Other cattle.....	121	125
Sheep.....	14	15	Sheep.....	14	15
Swine.....	25	27	Swine.....	21	23
New Brunswick—			Alberta—		
Horses.....	163	169	Horses.....	99	103
All cattle.....	114	116	All cattle.....	129	132
Milk cows ¹	180	162	Milk cows ¹	201	208
Other cattle.....	76	78	Other cattle.....	121	124
Sheep.....	15	15	Sheep.....	15	15
Swine.....	26	28	Swine.....	22	25
Quebec—			British Columbia—		
Horses.....	199	192	Horses.....	112	122
All cattle.....	129	128	All cattle.....	134	134
Milk cows ¹	176	173	Milk cows ¹	203	207
Other cattle.....	76	74	Other cattle.....	114	114
Sheep.....	13	13	Sheep.....	18	18
Swine.....	25	27	Swine.....	25	27
Ontario—			Totals—		
Horses.....	158	163	Horses.....	134	136
All cattle.....	158	154	All cattle.....	137	138
Milk cows ¹	230	225	Milk cows ¹	199	198
Other cattle.....	121	119	Other cattle.....	114	116
Sheep.....	19	18	Sheep.....	16	16
Swine.....	28	28	Swine.....	25	26

¹ Cows and heifers, two years old or over, kept for milk purposes.

The federal Department of Agriculture inspects all livestock in plants designated as inspected establishments under the Meat and Canned Foods Act. A record is kept of these inspections and figures from 1947 are given in Table 17. Local wholesale butch-erings and slaughterings carried out by retail butchers and by farmers for their own use are not included. Actually, the slaughtering and meat packing industry is concentrated in a comparatively small number of large establishments to facilitate greater efficiency and utilization of products; thus the figures of Table 17 are fairly inclusive. The slaughtering and meat packing industry is dealt with in its proper relation to all other manufacturing enterprises in Chapter XIV of this volume. On a gross value basis it normally ranks among the four largest manufacturing industries in Canada but it owes its importance to the value of raw products obtained from the farmer and the rancher rather than to the value added by the manufacturing process.

17.—Livestock Slaughtered at Inspected Establishments 1947-60, and by Month 1960

(Exclusive of Newfoundland)

Year	Cattle	Calves	Sheep	Hogs	Year and Month	Cattle	Calves	Sheep	Hogs
	No.	No.	No.	No.	1960	No.	No.	No.	No.
1947.....	1,291,759	665,311	900,766	4,452,816	January.....	157,018	36,528	30,049	641,456
1948.....	1,489,883	787,410	768,943	4,487,649	February.....	139,329	34,459	26,212	548,225
1949.....	1,439,489	766,277	629,673	4,098,609	March.....	176,230	81,627	25,910	689,460
1950.....	1,244,683	773,205	521,089	4,405,055	April.....	135,629	91,086	20,570	555,148
1951.....	1,149,789	583,718	458,518	4,388,007	May.....	146,974	78,573	17,127	495,418
1952.....	1,237,630	567,760	512,966	6,234,145	June.....	183,388	70,403	26,870	533,927
1953.....	1,469,406	740,723	543,371	4,611,312	July.....	154,034	51,473	33,271	395,156
1954.....	1,635,008	820,596	562,555	4,679,214	August.....	156,960	49,478	51,021	390,123
1955.....	1,702,108	828,658	591,566	5,543,787	September.....	200,924	68,940	107,930	501,672
1956.....	1,874,363	891,615	599,974	5,548,289	October.....	161,756	58,512	104,561	441,490
1957.....	1,986,251	887,102	581,963	4,971,477	November.....	165,465	50,474	74,379	480,724
1958.....	1,889,280	784,767	548,976	5,963,928	December.....	163,996	40,547	44,778	509,516
1959.....	1,744,185	676,571	569,746	8,020,766					
1960.....	1,941,703	712,100	562,678	6,182,315	Totals, 1960	1,941,703	712,100	562,678	6,182,315

Poultry.—Poultry on farms and their values are given in Table 18; production and consumption of poultry meat are included in Table 19.

18.—Numbers and Values of Poultry on Farms, by Province, as at June 1, 1960 and 1961

NOTE.—Values for turkeys, geese and ducks for the years 1960 and 1961 are not strictly comparable with values for earlier years published in previous editions of the Year Book because of a change in the method of collecting information.

Province and Year	Hens and Chickens		Turkeys		Geese		Ducks		Totals	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000
Newfoundland.....	..	..	..	..	..	..	..	..	..	..
Prince Edward Is..1960	670	655	20	104	7	23	8	15	705	797
1961	570	572	11	58	6	21	7	14	594	665
Nova Scotia.....1960	2,250	2,674	19	95	2	9	1	2	2,272	2,780
1961	2,500	2,954	28	151	2	8	1	2	2,531	3,115
New Brunswick....1960	1,075	1,318	18	96	3	12	2	5	1,098	1,433
1961	1,110	1,308	23	128	3	12	2	5	1,138	1,453
Quebec.....1960	10,260	10,461	636	3,112	9	31	52	105	10,951	13,709
1961	12,000	11,486	745	3,636	8	29	61	125	12,814	15,276
Ontario.....1960	27,600	26,220	2,200	10,714	109	379	130	247	30,039	37,566
1961	27,100	26,438	2,700	12,987	90	327	137	264	30,027	40,016
Manitoba.....1960	6,400	4,458	915	3,074	40	100	35	51	7,390	7,685
1961	6,280	4,663	1,200	4,104	35	93	30	44	7,545	8,900
Saskatchewan.....1960	6,980	4,463	1,000	3,240	40	108	58	89	8,078	7,900
1961	6,790	4,647	1,260	4,460	38	110	54	89	8,142	9,300
Alberta.....1960	8,820	6,038	975	3,617	74	200	70	111	9,939	9,96
1961	9,230	6,560	1,280	5,171	70	197	72	116	10,652	12,04
British Columbia...1960	4,740	5,038	400	2,148	12	49	25	54	5,177	7,28
1961	5,200	5,391	450	2,128	12	42	27	49	5,689	7,61
Totals.....1960	68,795	61,325	6,177	26,200	296	911	381	679	75,649	89,11
1961	70,780	61,019	7,697	32,823	261	839	391	708	79,132	98,38

19.—Production and Domestic Disappearance of Poultry Meat, 1960

(Eviscerated weight)

Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
Fowl and chickens.....	357,939	387,061	372,077	20.9
Turkeys.....	107,644	124,128	113,548	6.4
Geese.....	3,145	3,274	3,138	0.2
Ducks.....	4,136	6,100	5,817	0.3
Totals	472,864	520,563	494,580	27.8

Subsection 5.—Dairying

Milk production in 1961 reached a new record at 19,245,000,000 lb., 4.1 p.c. higher than in 1960. All provinces contributed to the increase, particularly Quebec and Ontario, and most of it was utilized in the manufacture of creamery butter. Of the total milk produced, 59.4 p.c. was used for factory-made dairy products, 30.2 p.c. was sold in fluid form and 10.4 p.c. was used for all purposes on farms.

20.—Production and Utilization of Milk, by Province, 1959-61

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms ¹	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....	1959 2,714	174,120	26,850	22,460	13,486	239,630
1960 ^r 2,223	160,213	27,339	22,550	13,273	225,598	
1961 2,153	169,942	27,088	23,790	14,115	237,088	
Nova Scotia.....	1959 15,023	144,447	187,514	47,570	18,900	413,454
1960 ^r 12,987	124,179	194,244	47,490	19,290	398,190	
1961 12,191	133,437	196,865	42,690	17,512	402,695	
New Brunswick.....	1959 18,767	208,783	156,260	41,700	22,960	448,470
1960 ^r 19,141	195,549	157,370	40,570	27,180	439,810	
1961 19,820	201,045	161,454	39,200	24,732	446,851	
Quebec.....	1959 27,729	3,824,899	1,682,475	271,100	211,320	6,017,523
1960 ^r 23,728	3,926,354	1,722,536	287,100	219,130	6,178,848	
1961 19,984	4,252,715	1,753,629	281,400	233,520	6,541,248	
Ontario.....	1959 17,737	3,614,801	2,111,370	230,300	234,800	6,209,008
1960 ^r 15,070	3,652,196	2,148,655	222,800	225,900	6,264,621	
1961 10,086	3,868,549	2,162,611	215,900	249,700	6,506,246	
Manitoba.....	1959 34,094	639,908	311,539	101,460	52,520	1,139,521
1960 ^r 29,718	625,046	321,845	95,800	54,720	1,127,129	
1961 25,342	640,668	320,388	86,040	56,510	1,128,948	
Saskatchewan.....	1959 63,484	710,899	323,322	176,100	63,740	1,337,545
1960 ^r 57,681	698,002	338,730	177,300	65,490	1,337,203	
1961 52,182	705,801	343,645	170,400	72,470	1,344,498	
Alberta.....	1959 57,283	925,322	360,493	141,700	56,210	1,541,008
1960 ^r 52,650	1,014,576	365,401	146,400	57,110	1,636,137	
1961 43,664	1,097,169	369,307	145,000	65,250	1,720,390	
British Columbia.....	1959 9,618	308,830	462,040	31,820	28,270	840,578
1960 ^r 9,734	329,692	475,261	32,530	30,670	877,887	
1961 8,424	363,878	479,500	31,710	33,790	917,302	
Totals	1959 216,449	10,552,009	5,621,863	1,064,210	702,206	18,186,737
1960 ^r 222,932	10,725,807	5,751,381	1,072,540	712,763	18,485,423	
1961 193,846	11,433,804	5,813,887	1,036,130	767,599	19,245,266	

¹ Used in farm butter only.

21.—Farm Values of Milk Production, by Province, 1959-61

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms ¹	In Factories	Fluid Sales	Farm-Home Consumed	Fed on Farms ²	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....1959	74	4,138	1,054	615	866	6,747
1960	60	3,769	1,068	613	807	6,317
1961	58	3,976	1,065	649	877	6,625
Nova Scotia.....1959	385	3,509	8,963	1,408	976	15,241
1960	333	3,080	9,258	1,425	915	15,011
1961	313	3,276	9,406	1,276	872	15,143
New Brunswick.....1959	505	4,862	7,084	1,213	1,367	15,031
1960	515	4,533	7,262	1,185	1,429	14,924
1961	534	4,696	7,377	1,152	1,383	15,142
Quebec.....1959	747	99,479	70,721	8,540	15,652	195,139
1960	639	99,128	72,526	8,871	17,071	198,235
1961	538	105,678	73,830	8,611	18,660	207,317
Ontario.....1959	478	93,149	91,859	6,886	12,423	204,795
1960	406	89,592	95,434	6,550	12,663	204,645
1961	276	92,614	95,727	6,067	12,569	207,253
Manitoba.....1959	903	14,169	12,205	2,597	3,581	33,455
1960	787	13,963	12,682	2,472	3,551	33,455
1961	671	14,281	13,140	2,211	3,615	33,918
Saskatchewan.....1959	1,628	16,238	13,577	4,561	3,952	39,956
1960	1,479	15,817	14,146	4,681	4,281	40,404
1961	1,338	15,918	14,504	4,482	4,469	40,711
Alberta.....1959	1,469	21,976	15,575	3,727	4,139	46,886
1960	1,350	23,791	15,781	3,836	4,337	49,095
1961	1,120	25,588	16,005	3,857	5,227	51,797
British Columbia.....1959	238	8,932	26,326	999	991	37,486
1960	241	8,734	26,834	1,021	1,090	37,920
1961	205	9,925	26,654	973	1,170	38,927
Totals.....1959	6,427	266,452	217,361	30,546	43,947	594,736
1960	5,810	262,407	254,991	30,654	46,144	600,006
1961	5,053	275,952	257,708	29,278	48,842	616,833

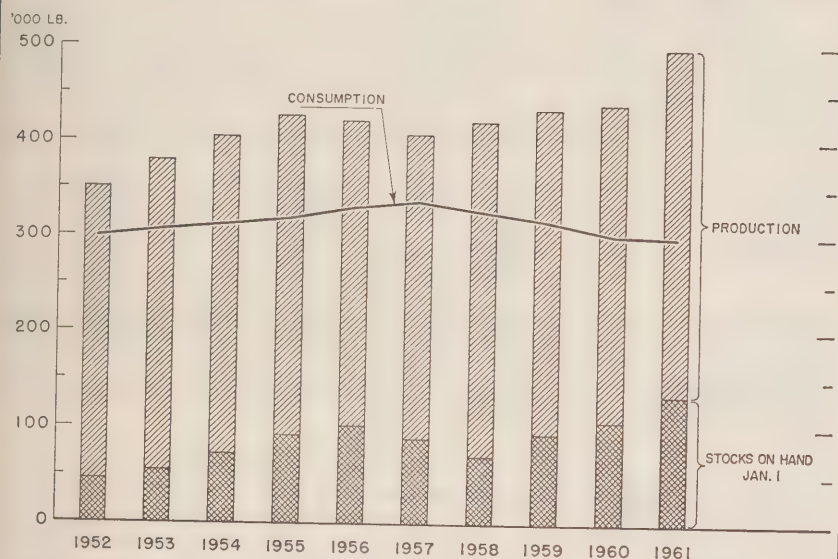
¹ Used in farm butter only.² Includes values of skim milk and buttermilk retained on farms.

Butter production in 1961 stood at 363,751,000 lb., almost 31,000,000 lb. more than in the previous year. The 1961 total included 351,598,000 lb. of creamery butter, 8,284,000 lb. of dairy or farm-made butter and 3,869,000 lb. of whey butter. The annual per capita consumption of creamery butter continued its downward trend from 16.27 lb. in 1960 to 15.77 lb. in 1961. Stocks on hand at the end of the year amounted to 126,786,000 lb., the largest carryover on record. Combined with the butter equivalent of butter oil stocks, the carryover was 197,172,000 lb.

Factory cheese production in 1961 was estimated at 130,370,000 lb., 6.2 p.c. higher than in 1960. Peak cheese production occurred in 1942 when the output was 207,431,000 lb. and peak exports in 1945 when they amounted to 135,409,000 lb. Exports of cheese, mostly cheddar, in 1961 amounted to 19,508,000 lb. and in 1960 to 18,780,000 lb.

BUTTER STOCKS, PRODUCTION AND CONSUMPTION, 1952-61

(IMPORTS AND EXPORTS, BEING OF SLIGHT IMPORTANCE, ARE NOT TAKEN INTO ACCOUNT IN THIS CHART)



22.—Production of Butter and Cheese, by Province, 1959-61

Province and Year	Butter				Cheese
	Creamery	Dairy	Whey	Total	Factory ¹
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..
Prince Edward Island.....	1959 5,859	116	19	5,994	1,190
	1960 ^r 5,237	95	18	5,350	1,028
	1961 5,808	92	16	5,916	876
Nova Scotia.....	1959 4,490	642	—	5,132	—
	1960 ^r 3,613	555	—	4,168	—
	1961 3,926	521	—	4,447	—
New Brunswick.....	1959 7,831	802	—	8,633	767
	1960 ^r 7,238	818	—	8,056	705
	1961 7,571	847	—	8,418	526
Quebec.....	1959 127,127	1,185	273	128,585	37,597
	1960 ^r 123,731	1,014	291	125,036	42,164
	1961 138,789	854	985	140,628	50,296
Ontario.....	1959 87,381	758	2,425	90,564	76,376
	1960 ^r 85,396	644	2,649	88,689	75,018
	1961 95,036	431	2,861	98,328	74,839
Manitoba.....	1959 25,630	1,457	—	27,087	385
	1960 ^r 24,778	1,270	—	26,048	723
	1961 25,278	1,083	—	26,361	759

For footnote, see end of table, p. 424.

22.—Production of Butter and Cheese, by Province, 1959-61—concluded

Province and Year	Butter				Cheese
	Creamery	Dairy	Whey	Total	Factory ¹
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Saskatchewan.....1959	28,671	2,713	—	31,384	190
.....1960	28,012	2,465	—	30,477	292
.....1961	28,393	2,230	—	30,623	29
Alberta.....1959	34,322	2,448	5	36,775	1,577
.....1960	37,338	2,250	7	39,595	1,808
.....1961	40,917	1,866	7	42,790	1,827
British Columbia.....1959	4,267	411	—	4,678	705
.....1960	5,060	416	—	5,476	1,007
.....1961	5,880	360	—	6,240	1,218
Totals.....1959	325,578	10,532	2,722	338,832	119,120²
.....1960	320,403	9,527	2,965	332,895	122,745
.....1961	351,598	8,284	3,869	363,751	130,370

¹ Factory-made cheese includes cheddar and other cheese made from whole milk and cream. ² Amounts for "other cheese" are included in Quebec and Ontario figures but, as fewer than three firms reported in the other provinces, data cannot be included except in the Canada total.

The output of concentrated whole milk, normally only slightly in excess of domestic requirements, was 13.0 p.c. above those requirements in 1961. Exports and per capita consumption decreased 23.8 p.c. and 5.0 p.c., respectively, from 1960. Skim milk powder production at 213,029,000 lb. was 41,060,000 lb. above production in 1960 and 27,404,000 lb. above the previous peak reached in 1958. Exports advanced from 47,992,000 lb. in 1960 to about 53,050,000 lb. in 1961 and domestic disappearance reached a record high of 152,826,000 lb., 24.5 p.c. above the previous year.

23.—Production of Concentrated Milk Products, 1957-61

(Exclusive of Newfoundland)

Product	1957	1958	1959	1960 [*]	1961
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Concentrated Whole Milk Products	380,107	361,884	362,984	404,325	393,805
Condensed milk.....	14,730	14,194	14,553	14,420	14,814
Evaporated skim milk.....	316,824	305,267	302,697	316,950	321,994
Whole milk powder.....	23,088	19,713	20,872	45,829	25,622
Partly skimmed evaporated milk.....	21,888	21,119	21,163	20,178	22,474
Other whole milk products ¹	3,577	1,591	3,699	6,948	8,901
Concentrated Milk By-products	159,951	221,433	220,260	209,898	268,537
Condensed skim milk.....	3,476	3,444	3,814	2,602	1,999
Evaporated skim milk.....	9,184	10,028	7,662	2,769	6,129
Skim milk powder.....	120,710	185,625	176,437	171,969	213,029
Powdered buttermilk.....	8,100	8,028	7,740	8,179	9,833
Whey powder.....	13,037	12,820	16,599	11,037	19,121
Casein.....	4,896	3,430	4,924	8,000	13,926
Other milk by-products ²	548	1,058	3,084	5,342	4,500
Totals.....	540,058	586,317	583,244	614,223	662,342

¹ Includes malted milk, cream powder, formula milks, whole milk powder of less than 26 p.c. fat, evaporated milk of 2 p.c. fat, multi-milk and sterilized cream manufactured by fewer than three firms. ² Includes sugar of milk (lactose), condensed buttermilk, multi-skim milk and special formula skim milk products manufactured by fewer than three firms.

24.—Production of Ice Cream Mix, by Province, 1958-61

Province	1958 ¹	1959 ¹	1960	1961	Province	1958 ¹	1959 ¹	1960	1961
	'000 gal.	'000 gal.	'000 gal.	'000 gal.		'000 gal.	'000 gal.	'000 gal.	'000 gal.
Newfoundland.....	..	..	..	..	Manitoba.....	876	944	1,063	1,156
P. E. Island.....	97	115	126	124	Saskatchewan.....	1,060	1,104	1,139	1,135
Nova Scotia.....	730	816	876	883	Alberta.....	1,637	1,669	1,862	2,016
New Brunswick.....	437	501	540	548	British Columbia...	2,118	2,138	2,175	2,361
Quebec.....	4,518	5,064	5,022	5,266	Totals.....	18,282	20,009	20,480	21,417
Ontario.....	6,809	7,658	7,677	7,878					

¹ Previous to 1960, ice cream mix data were doubled and published as ice cream.

The estimated consumption of fluid milk and cream, on a milk basis, amounted to 5,310,091,000 pt. in 1961, which amount was 20,231,000 pt. higher than the 1960 consumption. The daily average consumption per capita was 0.82 pt. compared to 0.83 pt. in 1960. The estimated consumption of milk and cream is given by province in Table 25 and the domestic disappearance of all dairy products in Table 26.

25.—Estimated Consumption of Milk and Cream (expressed as Milk), by Province, 1959-61

Province and Year	Estimated Consumption	Daily per Capita Consumption	Province and Year	Estimated Consumption	Daily per Capita Consumption
	'000 pt.	pt.		'000 pt.	pt.
Newfoundland.....	..	..	Manitoba.....1959	320,154	0.99
Prince Edward Island....1959	38,225	1.03	1960	323,755	0.98
1960	38,674	1.03	1961	315,061	0.94
1961	39,440	1.03	Saskatchewan.....1959	387,149	1.17
Nova Scotia.....1959	182,236	0.70	1960	400,023	1.20
1960	187,391	0.71	1961	398,485	1.18
1961	185,702	0.69	Alberta.....1959	389,297	0.86
New Brunswick.....1959	153,458	0.71	1960	396,745 ^r	0.84
1960	153,442	0.70	1961	398,687	0.82
1961	155,546	0.71	British Columbia.....1959	382,836	0.67
Quebec.....1959	1,514,399	0.83	1960	393,636	0.67
1960	1,557,857 ^r	0.83	1961	396,286	0.67
1961	1,577,542	0.82	Totals.....1959	5,183,002	0.84
Ontario.....1959	1,815,248	0.84	1960	5,289,860^r	0.83
1960	1,838,337 ^r	0.83 ^r	1961	5,310,091	0.82
1961	1,843,342	0.81			

26.—Domestic Disappearance of Dairy Products, 1959-61

Product	1959		1960 ^r		1961	
	Total	Per Capita ¹	Total	Per Capita ¹	Total	Per Capita ¹
	'000 lb.	lb.	'000 lb.	lb.	'000 lb.	lb.
Milk and Cream.....	6,686,073	393.46	6,823,921	393.20	6,850,017	385.27
Milk.....	5,654,739	332.77	5,762,614	332.05	5,784,201	325.32
Cream as milk.....	1,031,334	60.69	1,061,307	61.15	1,065,816	59.95
Cream as product.....	203,691	11.99	208,425	12.01	210,390	11.83
Butter.....	316,210	18.13	302,395	16.98	299,694	16.43
Creamery.....	303,059	17.38	289,889	16.27	287,688	15.77
Dairy.....	10,532	0.60	9,527	0.54	8,284	0.46
Whey.....	2,619	0.15	2,979	0.17	3,722	0.20

¹ Includes Newfoundland for all manufactured dairy products.

26.—Domestic Disappearance of Dairy Products, 1959-61—concluded

Product	1959		1960 ¹		1961	
	Total	Per Capita ¹	Total	Per Capita ¹	Total	Per Capita ¹
	'000 lb.	lb.	'000 lb.	lb.	'000 lb.	lb.
Cheese	122,000	7.00	128,523	7.21	134,214	7.36
Cheddar.....	47,395	2.72	50,597	2.84	50,754	2.78
Process.....	52,016	2.98	55,176	3.10	57,493	3.16
Other.....	22,589	1.30	22,750	1.27	25,967	1.42
Concentrated Whole Milk Products²	343,697	19.71	359,548	20.18	349,809	19.18
Evaporated.....	300,851	17.25	314,735	17.67	300,732	16.49
Condensed.....	14,437	0.83	14,253	0.80	14,732	0.81
Powdered.....	3,879	0.22	4,899	0.28	3,190	0.17
Concentrated Milk By-products³	163,669	9.38	159,289	8.94	203,147	11.14
Evaporated.....	7,658	0.44	2,767	0.16	6,138	0.34
Condensed.....	3,789	0.22	2,562	0.14	2,086	0.11
Powdered.....	121,302	6.95	122,749	6.89	152,826	8.38
All Dairy Products in Terms of Milk—						
Butter	7,338,030	420.71	7,006,335	393.30	6,925,745	379.74
Cheese	1,174,112	67.32	1,251,317	70.24	1,311,165	71.89
Concentrated	790,328	45.31	835,137	46.88	798,474	43.78
Grand Totals⁴	16,668,832	965.80	16,613,030	942.71	16,613,579	920.61

¹ Includes Newfoundland for all manufactured dairy products.² Includes, in addition to the items listed, malted milk, cream powder, partly skimmed evaporated milk, whole milk powder of less than 26 p.c. fat, formula milks, evaporated milk of 2 p.c. fat, and multi-milk.³ Includes milk by-products items not listed, i.e., condensed buttermilk, powdered buttermilk, sugar of milk, casein, powdered whey, special formula skim milk products and milkshake milk. Since the quantities used for human consumption and livestock feeding cannot be separated, per capita figures include both.⁴ Includes ice cream mix in terms of milk.

Subsection 6.—Fruits and Vegetables

Fruits.—Commercial fruit growing in Canada is confined almost exclusively to rather limited areas in the Provinces of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. Nova Scotia production is centred mainly in the Annapolis Valley and New Brunswick production in the St. John River Valley and Westmorland County. The fruit growing districts of Quebec are the Montreal area, the North Shore area, the Eastern Townships and the Quebec City district. Ontario fruit is grown in all the counties adjacent to the St. Lawrence River and the Great Lakes as far west as Georgian Bay, the Niagara district being the most productive. In British Columbia the four well-defined fruit areas are the Okanagan Valley, the Fraser Valley, the Kootenay and Arrow Lakes district and Vancouver Island. The climate elsewhere in Canada is not generally suitable for commercial tree-fruit culture. In most producing areas, particularly in the Annapolis Valley of Nova Scotia, the Niagara Peninsula of Ontario and the Okanagan Valley of British Columbia, fruit growing is either the principal or one of the most important forms of agriculture and is of paramount importance to the economy of those areas. Apples and small fruits are produced commercially in the provinces named but tender tree fruits and commercial vineyards are limited largely to Ontario and British Columbia.

Strawberries are grown commercially in all provinces for which tree-fruit statistics are prepared, as well as in Prince Edward Island. However, this crop is produced over a somewhat wider area than are tree fruits. In Nova Scotia, for example, considerable quantities of strawberries are grown in Colchester County and farther north, as well as in the apple producing areas of the Annapolis Valley. In British Columbia most of the strawberries are grown in the Fraser Valley rather than in the predominantly tree-fruit producing area of the Okanagan Valley.

Raspberries are grown commercially in Nova Scotia, New Brunswick and Quebec but the bulk of the crop is produced in Ontario and British Columbia. The Fraser Valley of British Columbia is the most important producing area.

Wild blueberries are harvested on a commercial scale in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Quebec. This crop is indigenous to certain lands in these areas. Individuals who harvest the wild berries may undertake to burn the land from time to time for weed control and to effect pruning, dusting is often carried out to control insects, and bees are sometimes introduced to achieve better pollination. A large percentage of the crop is frozen and exported. Some blueberries are picked for sale in other provinces but no statistics of this trade are available. There is also some production of cultivated blueberries, particularly in British Columbia.

A marketing system has been developed for distributing fresh fruit from the specialized production areas to all parts of the country and a large proportion of the deciduous fruit consumed in Canada is grown domestically. Considerable quantities of apples, strawberries and blueberries are exported.

Canning and processing industries have developed in the fruit growing districts and, although the importance of the processing market varies with different fruits, it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops.

Tables 27 and 28 show the estimated commercial production of fruit, by kind and by province, for the years 1958-60. Although details of production for 1961 were not available at the time of the preparation of this material, estimates placed the apple crop at 16,200,000 bu., 9 p.c. above the 1960 output, and growers picked an estimated 3,100,000 bu. of peaches, the largest crop ever produced. Plums and prunes, cherries and loganberries were also harvested in greater quantities.

27.—Estimated Commercial Production and Farm Value of Fruit, 1958-60

Kind of Fruit and Year	Quantity	Weight	Farm Value	Average Farm Price per Unit of Quantity ¹	Kind of Fruit and Year	Quantity	Weight	Farm Value	Average Farm Price per Unit of Quantity ¹
	'000 bu.	'000 lb.	\$'000	\$		'000 bu.	'000 lb.	\$'000	\$
Apples—					Cherries (sour)—				
1958.....	17,006	765,270	14,729	0.87	1958.....	460	23,000	1,937	4.21
1959.....	15,517	698,265	17,294	1.11	1959.....	241	12,050	815	3.38
1960.....	14,914	671,130	23,147	1.55	1960.....	254	12,700	1,326	5.22
Pears—					Strawberries—	'000 qt.			
1958.....	1,521	76,050	2,986	1.96	1958.....	23,926	31,600	5,264	0.22
1959.....	1,276	63,800	2,355	1.85	1959.....	21,405	28,308	4,711	0.22
1960.....	1,528	76,400	3,209	2.10	1960.....	26,114	33,880	5,734	0.22
Plums and Prunes—					Raspberries—				
1958.....	648	32,400	1,194	1.81	1958.....	11,865	16,732	2,655	0.22
1959.....	620	31,000	1,020	1.65	1959.....	11,215	15,963	2,781	0.25
1960.....	467	23,350	970	2.08	1960.....	11,899	16,760	3,126	0.26
Peaches—					Loganberries—	'000 lb.			
1958.....	3,043	152,150	5,761	1.89	1958.....	893	893	134	0.15
1959.....	2,645	132,250	5,444	2.06	1959.....	1,217	1,217	184	0.15
1960.....	2,362	118,100	6,137	2.60	1960.....	1,095	1,095	163	0.15
Apricots—					Grapes—				
1958.....	231	11,550	443	1.92	1958.....	106,222	106,222	4,867	0.05
1959.....	181	9,050	464	2.56	1959.....	84,378	84,378	4,034	0.05
1960.....	305	15,270	674	2.21	1960.....	113,167	113,167	4,899	0.04
Cherries (sweet)—					Blueberries—				
1958.....	297	14,850	1,799	6.06	1958.....	16,283	16,283	2,365	0.15
1959.....	246	12,300	1,708	6.94	1959.....	23,008	23,008	2,710	0.12
1960.....	201	10,050	1,893	9.41	1960.....	19,604	19,604	2,383	0.12

¹ Price to growers (to pickers in the case of blueberries) for unpacked fruit.

28.—Quantity and Value of Commercial Fruit Produced, by Province, 1958-60

Province	Quantity			Value ¹		
	1958	1959	1960	1958	1959	1960
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Newfoundland.....	1,644	1,500	2,813	115	105	197
Prince Edward Island.....	1,868	1,412	2,293	303	221	394
Nova Scotia.....	72,565	110,455	111,192	1,816	2,404	2,913
New Brunswick.....	19,575	26,812	23,492	1,026	1,124	1,370
Quebec.....	217,310	198,986	156,374	6,475	6,924	6,930
Ontario.....	553,994	483,976	457,992	21,111	19,189	24,016
British Columbia.....	380,046	288,442	357,494	13,288	13,553	17,203
Totals.....	1,217,002	1,111,583	1,111,650	44,134	43,520	53,023

¹ Farm value (to pickers in the case of blueberries) for unpacked fruit.

Vegetables.—Estimates of acreage and production of commercial vegetables in Canada are prepared for all provinces except Newfoundland, Prince Edward Island and Saskatchewan. The Province of Ontario is the largest producer, followed by Quebec and British Columbia. A wide variety of crops is grown in these three provinces and a somewhat smaller range in the Maritimes and in the Prairie Provinces.

Canning, freezing and processing of vegetables are carried on in the important producing areas. The estimates in the following tables cover output of commercial growers only and do not include any acreages or production of vegetables grown for home use on farms or elsewhere.

29.—Estimated Commercial Acreage of Vegetables, by Province, 1959-61

Province	1959	1960	1961
	acres	acres	acres
Nova Scotia ¹	5,430	3,210	3,620
New Brunswick ¹	1,420	5,500	5,060
Quebec.....	66,410	69,560	74,360
Ontario.....	99,160	101,910	99,490
Manitoba ²	3,870	3,670	3,700
Alberta ²	13,840	15,090	13,870
British Columbia.....	15,300	15,860	17,070
Totals.....	205,430	214,800	217,170

¹ Acreages of peas in Prince Edward Island and New Brunswick are included with Nova Scotia in 1959; in 1960 and 1961, Prince Edward Island and Nova Scotia acreages of peas are included with New Brunswick. ² Acreages of beans, corn and peas in Manitoba are included with Alberta.

30.—Estimated Commercial Acreage and Production of Vegetables 1958-60, with Average for 1955-59

Vegetable	Av. 1955-59		1958		1959		1960	
	Area	Production	Area	Production	Area	Production	Area	Production
	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.
Asparagus.....	3,800	7,499	3,820	7,612	3,930	7,565	4,010	7,178
Beans ¹	10,750	43,129	12,630	54,066	11,170	36,760	11,670	43,279
Beets.....	3,630	52,495	3,330	46,816	3,610	58,061	3,580	58,967
Cabbage.....	6,910	121,968	7,130	160,894	7,450	120,163	7,990	146,765
Carrots.....	10,370	196,153	11,870	244,718	12,510	245,315	13,255	324,679
Cauliflower.....	2,500	25,141	2,580	28,758	2,830	25,265	2,840	30,265
Celery.....	2,010	46,971	1,490	45,279	1,380	42,964	1,220	38,962
Corn.....	48,320	282,305	51,420	317,922	54,070	311,084	55,720	330,622
Lettuce.....	4,400	59,819	6,040	80,328	6,110	57,364	7,690	84,031
Onions.....	6,300	117,146	6,380	113,571	7,470	142,785	8,170	180,557
Peas ²	49,340	109,065	38,050	90,920	40,230	89,673	45,670	100,781
Spinach.....	1,130	12,620	1,040	10,850	1,230	14,970	1,410	13,328
Tomatoes.....	47,900	695,087	51,570	812,766	42,840	730,454	40,180	869,981

¹ Estimates apply only to that portion of the crop grown for processing in Quebec, Ontario, Manitoba and Alberta in 1958; in Ontario, Manitoba and Alberta in 1959 and 1960. ² Estimates apply only to that portion of the crop grown for processing in all provinces for which estimates are made except British Columbia.

Subsection 7.—Other Principal Farm Products

Tobacco.—The chief tobacco growing area of Canada is located in southern Ontario in the counties adjacent to Lake Erie; most of the cigarette tobacco comes from this district. In Ontario as a whole, 123,831 acres of flue-cured or Bright Virginia type tobacco were harvested in 1960. This is the most important type grown in Canada although dark air-cured and fire-cured tobacco as well as cigar tobacco are grown on a limited scale. The only other important production comes from Quebec. In 1960, 5,218 acres of flue-cured tobacco, 5,100 acres of cigar tobacco and 1,280 acres of pipe tobacco were harvested in that province. Recently, small acreages have been successfully grown in Prince Edward Island, Nova Scotia and Manitoba.

A study of Department of National Revenue reports on tax-paid withdrawals of tobacco products reveals changes in the smoking habits of Canadians during the past three decades. In 1922, the first year for which comparable figures are available, Canadian annual per capita consumption of cigarettes was 229; by 1959 the annual per capita consumption (calculated on the basis of total population) had increased to 1,939. The figure for 1960 declined slightly to 1,925.

31.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Province, 1956-60

Year	Quebec			Ontario			British Columbia		
	Har-vested Area	Pro-duction	Value	Har-vested Area	Pro-duction	Value	Har-vested Area	Pro-duction	Value
	acres	'000 lb.	\$	acres	'000 lb.	\$	acres	'000 lb.	\$
1956.....	11,291	10,252	3,018,000	116,356	151,589	69,001,000	75	99	40,000
1957.....	9,786	8,333	2,854,000	126,961	156,488	75,716,000	40	44	19,000
1958.....	9,517	8,901	3,255,000	124,557	188,364	86,333,000	40	27	10,000
1959.....	10,275	11,736	4,722,000	117,801	158,120	85,660,000	40	33	14,000
1960.....	11,598	13,914	5,399,000	124,321	200,201	109,272,000	—	—	—

32.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Main Type, 1956-60

Type of Tobacco and Year	Harvested Area	Average Yield per Acre	Total Production	Average Farm Price per lb.	Gross Farm Value
	acres	lb.	lb.	cts.	\$
Flue-cured.....1956	117,614	1,265	148,743,000	46.1	68,578,000
.....1957	126,253	1,261	151,743,000	49.2	74,699,000
.....1958	122,914	1,475	181,290,000	46.5	84,380,000
.....1959	116,773	1,305	152,385,000	55.4	84,410,000
.....1960	129,092	1,592	205,514,000	54.6	112,118,000
Burley.....1956	4,496	1,593	7,028,000	31.4	2,210,000
.....1957	6,000	1,353	8,116,000	32.7	2,658,000
.....1958	7,299	1,642	11,984,000	34.8	4,168,000
.....1959	6,192	1,748	10,822,000	36.3	3,931,000
.....1960	10	1,200	12,000	41.7	5,000
Cigar leaf.....1956	3,235	1,174	3,797,000	19.9	756,000
.....1957	3,300	1,181	3,897,000	24.0	935,000
.....1958	3,085	1,009	3,122,000	24.5	765,000
.....1959	4,000	1,306	5,223,000	29.9	1,565,000
.....1960	5,100	1,303	6,647,000	28.2	1,871,000
Totals¹.....1956	127,722	1,274	161,940,000	44.5	72,059,000
.....1957	136,787	1,205	161,865,000	47.7	78,589,000
.....1958	134,126	1,471	197,302,000	45.4	89,603,000
.....1959	128,133	1,326	169,904,000	53.2	90,403,000
.....1960	135,962	1,575	214,167,000	53.6	114,699,000

¹ Includes other types not specified.

Sugar Beets and Beetroot Sugar.—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and beet sugar factories are located in these provinces. In Quebec, commercial production is centred in the St. Hilaire area of the Eastern Townships; in Ontario, production is confined largely to the southwestern section of the province. Alberta produces the largest crop and in that province sugar beets are grown under irrigation.

33. Acreage, Yield and Value of Sugar Beets and Quantity and Value of Refined Beetroot Sugar Produced 1955-61, with Average for 1950-54

Year	Sugar Beets					Refined Beetroot Sugar		
	Harvested Area	Yield per Acre	Total Yield	Average Price per Ton	Total Value	Quantity	Value	Price per lb.
	acres	tons	tons	\$	\$	lb.	\$	cts.
Av. 1950-54.....	91,881	10.90	1,001,677	14.46	14,480,000	270,523,587	25,639,968	9.48
1955.....	81,908	11.98	981,014	13.42	13,170,000	274,516,924	23,348,325	8.51
1956.....	78,786	11.33	892,872	17.33	15,470,000	246,621,644	21,505,407	8.72
1957.....	83,743	12.58	1,053,564	13.24	13,948,000	261,683,900	26,341,596	10.06
1958.....	97,845	13.54	1,324,759	14.47	19,175,000	339,878,748	30,928,966	9.10
1959.....	90,453	13.70	1,239,518	12.73	15,842,000	271,317,300	20,348,798	7.50
1960.....	86,060	12.77	1,098,673	14.36	15,778,000	308,329,590	21,911,134	7.11
1961.....	84,949	13.02	1,105,707	..	..	..	..	..

Eggs.—The net production of eggs in 1961 amounted to 446,533,000 doz., 4,517,000 doz. fewer than in 1960; an increase in the rate of lay in the later year was more than offset by a decline in the number of layers. The average farm value of eggs to producers was 35.5 cents in 1961 compared with 34.2 cents in 1960. According to the federal Department of Agriculture, the Canadian hatchery industry in 1961 broke all previous production records. Although only 3.7 p.c. more chicks from egg production stocks were hatched than in the previous year, the production of broiler-type chicks rose by 31.2 p.c. The number of broiler-type turkey poults hatched was 40.2 p.c. above 1960 and the hatch of turkeys for mature weights was 35.2 p.c. higher.

34.—Production, Utilization and Value of Farm Eggs, by Province, 1960 and 1961

Province	1960				1961			
	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid ¹	Total Value (Sold and Used)	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid ¹	Total Value (Sold and Used)
	'000	No.	'000 doz.	\$'000	'000	No.	'000 doz.	\$'000
Prince Edward Island.....	403	18,010	6,086	1,847	362	17,109	5,147	1,679
Nova Scotia.....	1,266	20,494	21,439	8,534	1,276	19,923	21,031	8,909
New Brunswick.....	532	18,563	8,130	3,584	527	18,598	8,094	3,579
Quebec.....	3,699	19,222	58,641	23,108	3,808	19,695	61,919	24,862
Ontario.....	11,406	20,567	193,762	68,920	11,106	20,822	191,173	69,685
Manitoba.....	2,585	18,591	39,857	10,404	2,485	18,394	37,876	10,592
Saskatchewan.....	2,762	17,242	39,248	10,297	2,454	17,351	35,094	9,515
Alberta.....	3,079	17,920	45,456	13,806	3,055	18,408	46,329	14,900
British Columbia.....	2,270	20,479	38,431	13,691	2,334	20,656	39,870	14,720
Totals.....	28,002	19,516	451,050	154,191	27,408	19,723	446,533	158,441

¹ Total laid less loss.

Wool.—Canada's wool requirements are met largely by imports which amounted to 49,502,000 lb. (greasy basis) in 1960 and 51,492,000 lb. in 1959. Exports amounted to 3,678,000 lb. in 1960 and 5,002,000 lb. in 1959. The apparent domestic consumption of wool shown in Table 35 is determined on the basis of production, exports and imports but does not take into consideration changes in stocks for which the data are not available. Differences in wool utilization from year to year are therefore probably less marked than is indicated by these figures.

35.—Production and Apparent Consumption of Wool, 1955-60

Item	1955	1956	1957	1958	1959	1960
Shorn Wool—						
Yield per fleece..... lb.	7.3	7.3	7.2	7.4	7.6	7.7
Total yield shorn..... '000 lb.	6,253	6,165	6,050	6,345	6,800	6,891
Price per pound..... cts.	35.3	37.8	41.4	48.1 ¹	44.4 ¹	48.0 ¹
Total value of shorn wool..... \$'000	2,208	2,328	2,507	3,053	3,016 ^c	3,168
Total pulled wool..... '000 lb.	1,595	1,707	1,825	1,279	1,487	1,387
Total wool production..... "	7,848	7,872	7,875	7,624	8,287	8,278
Apparent consumption..... "	58,355	61,517	51,289	45,831	54,777	54,102

¹ Includes Agricultural Stabilization Act payments of 28 cents per lb. in 1958, 21 cents per lb. in 1959, and 23 cents per lb. in 1960 on qualifying graded wool.

Honey.—Honey is produced commercially in all provinces of Canada except Newfoundland, Ontario being the largest producer. There is a considerable movement of honey from the Prairie Provinces to other parts of Canada.

Honey statistics have been compiled on an all-Canada basis since 1924 and show that the largest recorded crop was in 1948 when 45,145,000 lb. were produced. Production in 1960 was 32,224,000 lb. and in 1961, 31,476,000 lb. The increased quantity in 1961 was brought about by slightly higher yields per colony and a moderate increase in colony numbers. However, the number of active beekeepers, estimated at 11,660 in 1961, was considerably below the 1960 total of 12,570. Average production per colony in 1961 stood at 102 lb.

In order to facilitate storage, shipment and uniformity of quality, considerable quantities of Canadian honey are pasteurized. Beekeepers' marketing co-operatives are active in several provinces. Bees are kept in some of the fruit growing districts mainly for purposes of pollination.

36.—Honey and Beeswax Production 1959-61, with Averages for 1950-54 and 1955-59

Item	Av. 1950-54	Av. 1955-59	1959	1960	1961
Honey—					
Total production.....	'000 lb. 29,345	28,145	31,527	32,224	35,030
Average production per colony.....	lb. 77	85	95	98	104
Total value.....	\$'000 4,585	4,929	5,451	5,179	5,351
Average price per lb. to producers.....	cts. 16	18	17	16	15
Beeswax—					
Production.....	'000 lb. 430	412	517	479	520
Value.....	\$'000 195	204	255	215	235
Total Value, Honey and Beeswax.....	\$'000 4,780	5,143	5,706	5,394	5,586
Beekeepers.....	No. 17,170	14,186	14,180	12,570	11,663
Bee colonies.....	" 380,500	328,340	330,700	327,340	336,910

37.—Honey Production, by Province, 1959-61, with Averages for 1950-54 and 1955-59

Province	Av. 1950-54	Av. 1955-59	1959	1960	1961
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	.. 69	.. 68	.. 61	.. 65	.. 73
Prince Edward Island.....	122	161	180	146	242
Nova Scotia.....	118	87	62	86	82
New Brunswick.....	3,886	3,349	3,952	2,284	2,971
Quebec.....	11,952	8,281	11,125	9,232	8,806
Ontario.....	4,729	5,297	5,905	6,380	6,380
Manitoba.....	3,211	3,664	3,838	4,515	3,930
Saskatchewan.....	4,149	5,693	5,095	7,576	9,912
Alberta.....	1,129	1,478	1,309	1,940	2,080
British Columbia.....					
Totals.....	29,345	28,078	31,527	32,224	34,476

Maple Sugar and Maple Syrup.—Maple syrup is produced in the Provinces of Nova Scotia, New Brunswick, Quebec and Ontario. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous both in Canada and in the United States as the centre of the maple products industry. Virtually all of the maple products exported are sent to the United States with the larger proportion moving as sugar, although substantial quantities of syrup are also shipped. Much of the syrup sold in Canada is marketed in one-gallon cans direct to the consumer from the producer but a considerable amount of both sugar and syrup is sold each year to processing firms.

Table 38 shows maple sugar and syrup production for 1950-61. Estimated output of the 1961 maple crop, expressed as syrup, was 2,827,000 gal.

**38.—Estimated Production of Maple Sugar and Maple Syrup, by Province, 1959-61,
with Averages for 1950-54 and 1955-59**

Province and Year	Maple Sugar			Maple Syrup			Total Value, Sugar and Syrup
	Quantity	Average Price per lb.	Value	Quantity	Average Price per gal.	Value	
	lb.	cts.	\$	gal.	\$	\$	\$
Nova Scotia—							
Av. 1950-54.....	12,000	53.0	6,000	5,000	4.04	19,000	25,000
Av. 1955-59.....	13,000	63.6	8,000	5,000	5.54	27,000	35,000
1959.....	14,000	64.0	9,000	5,000	5.60	28,000	37,000
1960.....	14,000	64.0	9,000	3,000	5.53	17,000	26,000
1961.....	14,000	63.0	9,000	4,000	5.41	22,000	31,000
New Brunswick—							
Av. 1950-54.....	72,000	48.0	34,000	10,000	4.35	45,000	79,000
Av. 1955-59.....	69,000	57.4	40,000	12,000	4.98	62,000	102,000
1959.....	47,000	60.0	28,000	8,000	5.15	41,000	69,000
1960.....	53,000	68.0	36,000	10,000	5.29	53,000	89,000
1961.....	42,000	59.0	25,000	13,000	5.33	69,000	94,000
Quebec—							
Av. 1950-54.....	1,518,000	40.1	608,000	2,103,000	3.69	7,764,000	8,373,000
Av. 1955-59.....	583,000	45.2	263,000	2,225,000	3.66	8,144,000	8,407,000
1959.....	418,000	40.0	167,000	2,109,000	3.91	8,228,000	8,595,000
1960.....	325,000	47.0	153,000	2,413,000	3.86	9,320,000	9,473,000
1961.....	627,000	46.0	288,000	2,420,000	3.81	9,220,000	9,508,000
Ontario—							
Av. 1950-54.....	25,000	46.0	12,000	346,000	4.20	1,453,000	1,464,000
Av. 1955-59.....	14,000	58.3	8,000	267,000	4.73	1,261,000	1,269,000
1959.....	9,000	82.0	7,000	190,000	5.05	960,000	967,000
1960.....	13,000	63.0	8,000	250,000	5.21	1,302,000	1,310,000
1961.....	24,000	71.0	17,000	319,000	5.04	1,608,000	1,625,000
Totals—							
Av. 1950-54.....	1,627,000	40.6	660,000	2,464,000	3.77	9,282,000	9,942,000
Av. 1955-59.....	679,000	47.1	320,000	2,509,000	3.78	9,494,000	9,814,000
1959.....	488,000	43.0	211,000	2,309,000	4.01	9,257,000	9,468,000
1960.....	405,000	50.0	206,000	2,676,000	4.00	10,692,000	10,898,000
1961.....	707,000	48.0	339,000	2,756,000	4.00	10,919,000	11,258,000

Nursery Stock.—Statistics concerning the nursery industry in Canada for recent years are presented in Tables 39 and 40. All nurseries were asked to report quantities sold of stock propagated during these years; stock purchased from other nurseries in Canada was excluded to prevent duplication. A total of 336 nurseries reported shipments in 1960, provincially distributed as follows: Ontario 183, British Columbia 54, Quebec 43, Manitoba 23, the Maritime Provinces 13, Alberta 11, and Saskatchewan 9. Wholesale value of nursery stock shipments of fruit trees, etc., amounted to \$463,300, and of ornamental species to \$3,637,500 in 1960; no comparable figures are available for previous years.

39.—Nursery Stock Shipments (Domestic), by Type, 1956-60

Classification	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Fruit Trees, etc.—					
Apple species.....	263,786	309,953	420,588	436,845	300,729
Tender tree-fruit species.....	188,885	300,817	275,542	314,265	256,185
Small fruit species.....	3,113,033	4,613,054	4,419,675	4,446,224	5,370,022
Other species.....	491,857	544,127	501,285	371,547	219,527
Ornamental Species—					
Rose bushes.....	338,185	595,000	460,879	592,113	2,001,121
Other ornamental shrubs and deciduous trees.....	2,454,521	4,185,953	3,548,277	4,113,190	4,908,373
Evergreen trees.....	515,952	1,362,406	1,329,200	1,631,726	1,292,029
Ornamental climbers.....	86,127	46,948	43,306	25,081	44,418
Bulbs and tubers.....	588,003	5,061,270	3,783,225	10,315,900	..
Herbaceous perennials.....	629,049	890,595	785,748	956,483	..
Hybrid teas on standards (roses).....	..	..	..	..	6,167

40.—Acreage of Nursery Stock, by Province, 1958-60

Province	1958		1959		1960	
	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species	Fruit Species	Ornamental Species
	acres	acres	acres	acres	acres	acres
Quebec ¹	76	196	256	779	67	168
Ontario.....	486	2,094	264	2,072	480	2,530
Prairie Provinces.....	80	271	76	459	104	529
British Columbia.....	159	152	36	162	70	155
Totals.....	801	2,713	632	3,472	721	3,382

¹ Includes the Maritime Provinces for which insufficient information was reported.

Greenhouse Operations.—Annual surveys have been made of greenhouse operations for 1955 and subsequent years. Data are reported by firms and individuals returning questionnaires, with the exception of that for cucumbers and tomatoes grown in Essex County of Ontario (the most important producing area), which is based on information obtained from the local co-operative marketing agency. Only greenhouses used for the production of items for sale are included in the survey. Of the total of 1,045 firms reporting in 1960, 1,011 reported operating glass commercially. In that year, the industry employed 4,144 persons, 3,015 of them in Ontario.

41.—Greenhouse Operations, by Province, 1960, with Totals for 1955-59

Province	Firms Reporting	Area			Value of Sales (Wholesale)			
		Under Glass	Under Cloth	Open Field	Cut Rooted and Potted Plants	Vegetables	Plants—Rooted Cuttings, etc., for Growing on	Total Sales
	No.	sq. ft.	sq. ft.	acres	\$	\$	\$	\$
Newfoundland...	4	25,700	—	0.3	71,869	800	7,955	32,020
Prince Edward Island.....	4	30,836	—	3.3				
Nova Scotia.....	26	423,266	—	7.5				
New Brunswick.....	21	192,004	7,400	11.8	393,022	126,551	27,725	547,293
Quebec.....	125	1,947,888	51,640	128.3	1,588,803	135	17,399	307,964
Ontario.....	585	11,261,418	397,168	1,701.6	9,253,820	47,088	251,986	1,887,967
Manitoba.....	25	179,005	1,960	63.0	133,242	3,235,193	1,517,458	14,006,471
Saskatchewan.....	12	146,380	4,960	17.3	94,339	104,627	242,144	242,144
Alberta.....	43	1,578,942	12,100	52.0	1,293,942	6,405	51,685	155,429
British Columbia.....	188	2,022,006	3,150	260.1	2,182,050	124,359	221,526	1,639,827
Totals, 1960	1,045	15,672,066	453,718	2,244.6	15,301,697	4,015,284	2,502,170	21,819,061
1959	1,191	15,778,177	590,372	1,928.4	16,948,269	3,421,308	2,191,411	22,560,988
1958	1,125	15,523,691	473,511	2,035.7	13,896,582	3,175,285	2,051,690	19,126,562
1957	1,269	15,411,256	422,621	1,815.2	13,393,838	3,116,221	1,922,298	18,432,267
1956	1,189	13,769,933	554,438	2,404.9	12,183,183	2,473,132	1,305,415	15,962,030
1955	1,250	14,318,611	602,862	2,781.3	11,322,191	1,420,861	1,076,545	13,819,597

Subsection 8.—Prices of Agricultural Products

The monthly index of farm prices of agricultural products was designed to measure changes occurring in the average prices farmers receive at the farm from the sale of farm products. In comparing current index numbers with those before August 1960, certain

points should be considered. Western grain prices used in the construction of the index before Aug. 1, 1960 are final prices for all grains. For the remaining months of 1960, the western grain prices used in the index are initial price plus interim payment for wheat, final price for oats and initial price only for barley. Subsequent participation payments made on the 1960 crops will be added to the prices currently used and the index revised upward accordingly.

42.—Average Index Numbers of Farm Prices of Agricultural Products, by Province, 1951-60, and Monthly Indexes for 1959 and 1960

(1935-39=100)

NOTE.—A description of this index, its coverage and the methods used will be found in *DBS Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003) for October-December 1946.

Year and Month	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
Averages—										
1951.....	236.4	243.2	250.8	305.6	315.0	301.6	268.7	308.0	287.1	296.8
1952.....	351.6	275.1	344.5	290.2	286.2	266.8	245.9	265.3	291.4	274.4
1953.....	191.5	234.8	213.2	272.1	263.8	245.3	238.7	217.8	265.7	250.4
1954.....	196.1	230.2	211.8	264.3	232.8	227.5	208.7	232.4	249.6	236.8
1955.....	220.6	220.0	236.0	261.7	249.2	235.6	203.5	223.2	248.5	232.7
1956.....	240.1	208.7	235.1	258.8	250.5	237.0	208.5	224.0	256.9	234.6
1957.....	197.0	212.6	219.4	264.8	255.4	232.4	201.6	223.6	260.2	234.2
1958.....	203.4	216.8	227.0	274.8	266.5	236.6	214.5	236.4	263.2	245.5
1959:										
January.....	192.7	221.9	213.9	273.9	270.3	244.9	221.6	242.5	265.6	249.8
February.....	180.8	221.5	211.0	274.2	266.5	242.5	219.6	240.8	268.3	247.7
March.....	180.3	218.0	212.1	274.4	260.3	241.0	218.5	240.5	261.9	245.1
April.....	182.6	220.5	208.7	270.4	260.8	241.1	218.2	240.9	260.3	244.7
May.....	279.1	226.2	242.0	271.2	261.2	242.0	217.0	243.1	258.0	247.0
June.....	284.1	234.1	259.9	273.5	261.6	240.4	217.2	242.2	263.1	247.9
July.....	263.3	237.2	283.0	278.2	265.1	242.0	218.6	242.4	268.9	250.5
August.....	301.7	237.9	294.7	274.9	264.8	246.6	222.2	243.0	261.7	251.7
September.....	238.8	231.9	237.4	272.4	265.0	242.4	224.0	244.8	270.7	250.1
October.....	232.5	228.1	232.9	271.7	265.2	236.7	219.1	236.6	270.6	246.8
November.....	243.3	227.1	240.3	268.7	266.8	233.5	215.0	232.3	270.2	245.2
December.....	234.2	222.8	238.3	268.8	263.1	233.8	212.8	226.4	265.9	242.1
Averages, 1959.....	234.4	227.3	239.5	272.7	264.2	240.6	218.6	239.6	265.5	247.4
1960										
January.....	264.4	230.6	257.2	268.3	260.9	230.1	210.4	224.3	263.9	240.9
February.....	253.1	230.6	259.5	268.9	255.8	228.0	207.9	219.8	260.5	237.7
March.....	264.8	232.8	269.4	265.9	253.3	229.5	209.6	220.9	266.0	237.9
April.....	293.2	246.3	309.2	273.0	260.2	233.5	214.5	225.6	268.2	244.9
May.....	339.4	254.1	317.7	275.4	262.4	233.2	213.3	227.7	269.8	246.6
June.....	342.7	259.9	317.8	279.0	268.1	236.2	215.6	232.3	273.6	250.7
July.....	310.3	256.2	302.8	278.9	272.7	239.3	217.7	234.3	272.9	252.3
August.....	218.3	221.8	220.9	270.4	266.3	229.4	206.5	226.8	271.6	241.3
September.....	219.0	232.2	219.8	272.4	267.0	230.8	211.8	233.2	278.5	244.7
October.....	222.1	232.7	232.9	277.0	267.5	230.8	212.0	229.2	279.0	245.0
November.....	219.9	232.2	237.8	273.4	267.4	231.3	210.5	229.7	277.9	244.4
December.....	221.1	227.0	231.6	278.5	270.8	234.4	213.6	230.9	277.1	246.9
Averages, 1960.....	266.5	233.0	264.7	273.4	264.4	232.2	212.0	227.9	271.6	244.4

Monthly prices of grain and monthly prices of livestock are shown in *DBS Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003).

43.—Average Cash Prices per Bushel of Major Canadian Grains, Crop Years Ended July 31, 1952-61

(Basis, in store Fort William—Port Arthur)

Year Ended July 31—	Averages in Cents and Eighths per Bushel				
	Wheat, 1. ^a No. 1 N.	Oats, 1 No. 2 C.W.	Barley, 1 No. 3 C.W. —6 Row	Rye, 2 No. 2 C.W.	Flaxseed, 2 No. 1 C.W.
	cts.	cts.	cts.	cts.	cts.
1952.....	182/2	91/1	133/1	193/5	428/1
1953.....	185/6	80/3	136/5	158/2	329
1954.....	186/2	73/2	109/7	99/1	283/6
1955.....	173	90/4	122/4	112/2	309/1
1956.....	174	83/5	114/3	110/1	360/1
1957.....	168/1	80/6	116	119/7	298/4
1958.....	162/3	78/3	111	106	303
1959.....	166/2	77/6	109/7	108	302
1960.....	165/7	82/4	108/1	109/7	334/2
1961.....	167/4	81/2	107/5	105	311/4

^a Canadian Wheat Board daily fixed prices.
for the crop year 1952-53 which are domestic sales only.

² International Wheat Agreement and domestic sales except
Winnipeg Grain Exchange daily closing cash quotations.

44.—Yearly Average Prices per 100 lb. of Canadian Livestock at Principal Markets, 1957-60

Item	Toronto				Montreal			
	1957	1958	1959	1960	1957	1958	1959	1960
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, up to 1,000 lb., good.....	19.05	22.90 ¹	25.10 ¹	22.65 ¹	18.55	22.45 ¹	24.67 ¹	22.95 ¹
Steers, up to 1,000 lb., medium.....	17.27	21.47 ¹	23.08 ¹	20.51 ¹	17.04	20.94 ¹	22.94 ¹	18.74 ¹
Steers, up to 1,000 lb., common.....	14.10	19.56 ¹	19.95 ¹	17.21 ¹	13.99	17.55 ¹	20.11 ¹	17.94 ¹
Steers, over 1,000 lb., good.....	18.82	...	...	...	18.41	...	...	...
Steers, over 1,000 lb., medium.....	17.05	...	...	...	17.29	...	...	...
Steers, over 1,000 lb., common.....	13.90	...	...	...	14.82	...	...	...
Heifers, good.....	17.10	21.06	23.31	20.45	16.11	19.65	21.42	19.73
Heifers, medium.....	15.20	19.71	21.35	18.46	14.26	17.81	19.94	18.63
Calves, fed, good.....	19.76	23.02	25.24	22.69	19.22	19.69	20.64	20.92
Cows, good.....	12.65	16.95	17.55	15.85	13.40	17.20	18.59	16.70
Cows, medium.....	11.62	16.05	16.37	14.80	11.63	15.66	16.90	15.42
Bulls, good.....	14.19	19.33	20.31	17.65	14.38	19.47	20.23	19.16
Stocker and feeder steers, good.....	18.50	23.50	25.10	22.90	2	2	2	2
Stocker and feeder steers, common.....	16.15	20.86	21.28	19.14	2	2	2	2
Stock cows and heifers, good.....	2	2	2	2	2	2	2	2
Stock cows and heifers, common.....	2	2	2	2	2	2	2	2
Calves, veal, good and choice.....	25.15	30.60	33.10	31.80	21.40	26.50	28.78	27.80
Calves, veal, common and medium.....	18.43	23.79	26.58	24.77	16.19	20.85	22.64	22.50
Hogs, Grade B-1, dressed ²	30.05	28.13	23.80	23.75	30.35	28.05	23.90	24.55
Lambs, good.....	22.45	22.35	21.15	21.85	19.46	19.72	20.13	20.10
Lambs, common.....	17.35	18.08	18.65	17.01	15.26	16.51	16.52	15.94
Sheep, good.....	8.49	8.36	9.11	9.12	9.10	9.18	9.11	8.95

For footnotes, see end of table.

44.—Yearly Average Prices per 100 lb. of Canadian Livestock at Principal Markets, 1957-60
—concluded

Item	Winnipeg				Edmonton			
	1957	1958	1959	1960	1957	1958	1959	1960
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, up to 1,000 lb., good.....	17.85	21.95 ¹	23.85 ¹	21.70 ¹	16.95	20.74 ¹	22.67 ¹	20.46 ¹
Steers, up to 1,000 lb., medium.....	15.74	20.58 ¹	22.20 ¹	19.85 ¹	15.40	19.23 ¹	20.94 ¹	18.85 ¹
Steers, up to 1,000 lb., common.....	12.39	17.99 ¹	19.25 ¹	16.66 ¹	12.22	16.89 ¹	18.48 ¹	16.73 ¹
Steers, over 1,000 lb., good.....	17.72	...	...	...	16.91	...	...	...
Steers, over 1,000 lb., medium.....	15.55	...	...	...	15.18	...	...	...
Steers, over 1,000 lb., common.....	12.42	...	...	...	12.95	...	...	...
Heifers, good.....	16.55	20.42	22.26	20.22	15.12	19.06	20.66	18.56
Heifers, medium.....	13.89	18.31	19.38	18.16	13.28	17.71	18.97	17.10
Calves, fed, good.....	17.64	21.76	23.49	20.57	16.51	20.03	21.75	18.96
Cows, good.....	11.90	16.60	17.05	15.50	11.00	15.17	15.49	14.40
Cows, medium.....	10.61	15.40	15.83	14.32	10.08	14.26	14.54	13.21
Bulls, good.....	12.66	18.12	18.37	16.69	12.63	17.70	16.99	15.10
Stocker and feeder steers, good.....	17.00	21.60	22.90	21.00	16.12	21.23	22.62	20.16
Stocker and feeder steers, common.....	14.19	18.38	19.21	18.07	13.47	18.32	18.79	17.37
Stock cows and heifers, good.....	12.17	18.50	20.18	17.55	12.06	16.61	18.21	15.45
Stock cows and heifers, common.....	10.11	16.58	17.35	15.24	9.60	14.54	14.97	13.20
Calves, veal, good and choice.....	23.65	28.45	31.75	30.45	19.60	24.85	24.65	23.94
Calves, veal, common and medium.....	16.98	22.46	25.63	24.05	14.90	18.63	20.15	19.84
Hogs, Grade B-1, dressed ²	28.20	25.20	21.30	21.65	27.55	24.59	20.46	20.63
Lambs, good.....	18.60	18.85	17.80	17.70	18.76	19.80	17.54	17.33
Lambs, common.....	15.06	15.87	16.08	15.77	16.49	16.96	15.51	15.51
Sheep, good.....	4.78	4.62	4.63	4.63	9.00	13.25	8.69	8.96

¹ All weights; beginning in 1958 prices for steers are not classified by weight.

² No sales reported.

* Grade B dressed from October 1959.

Subsection 9.—Food Consumption

Food consumption figures represent available supplies, including production and imports, adjusted for change of stocks, exports, marketing losses and industrial uses. All calculations are made at the retail stage of distribution, except for meats for which the figures are worked out at the wholesale stage. The amount of food actually eaten would be somewhat lower than indicated because of losses and waste occurring after the products reach the hands of the consumer. It should also be pointed out that there are minor inaccuracies in certain of the figures since statistics of storage stocks in the hands of retailers and consumers are not available.

All basic foods are classified under 13 main commodity groups. The total for each group is computed using a common denominator for the group, for example: milk solids (dry weight) in the dairy products group; fat content for fats and oils; and fresh equivalent for fruits. All foods are included in their basic form, that is, as flour, fat, sugar, etc., rather than in more highly manufactured forms.

The series in Table 45 represents the official estimates of yearly supplies of food moving into consumption, expressed in pounds per capita, for the years 1955-59 as an average for comparison with the years 1959 and 1960.

**45.—Per Capita Supplies of Food Moving into Consumption 1959 and 1960, with
Average for 1955-59**

Kind of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1955-59 Average	
	Average 1955-59	1959	1960	1959	1960
Cereals.....Retail wt.	158.7	153.3	155.0	96.6	97.7
Flour (including rye flour) ¹	141.4	136.0	136.7	96.2	96.7
Oatmeal and rolled oats.....	5.0	4.9	4.9	98.0	98.0
Pot and pearl barley.....	0.2	0.2	0.2	100.0	100.0
Corn meal and flour.....	1.0	1.4	1.7	140.0	170.0
Buckwheat flour.....	0.1	0.1	0.1	100.0	100.0
Rice.....	4.5	4.0	4.5	88.9	100.0
Breakfast food.....	6.5	6.7	6.9	103.0	106.0
Potatoes.....Retail wt.	150.3	147.1	170.5	97.9	113.4
Potatoes, white.....	149.7	146.6	170.0	97.9	113.6
Potatoes, sweet.....	0.6	0.5	0.5	83.3	83.3
Sugars and Syrups.....Sugar content	103.9	106.0	99.8	100.0	94.2
Sugar.....Refined wt.	97.8	98.3	93.0	100.5	95.1
Maple sugar.....Retail wt.	0.7	0.6	0.8	85.7	114.3
Other.....	12.0	11.1	9.4	92.5	78.3
Starch.....Retail wt.	1.6	1.6	1.6	100.0	100.0
Pulses and Nuts.....Retail wt.	10.6	10.6	9.8	100.0	92.5
Dry beans ²	3.8	3.8	2.9	100.0	76.3
Dry peas.....	1.2	1.1	1.2	91.7	100.0
Peanuts.....Shelled wt.	3.0	2.9	3.0	96.7	100.0
Tree nuts.....	1.2	1.4	1.2	116.7	100.0
Cocoa.....Green beans	2.9	2.9	3.1	100.0	106.9
Fruit.....Fresh equiv.	224.2	228.9	242.7	102.1	108.3
Tomatoes and Citrus Fruit—					
Tomatoes, fresh.....Retail wt.	17.6	17.8	17.6	101.1	100.0
Tomato products ³.....Net wt. canned	16.7	16.6	17.0	99.4	101.8
Citrus fruit, fresh.....Retail wt.	34.4	34.7	31.8	100.9	92.4
Citrus fruit juice.....Net wt. canned	14.9	16.0	16.6	107.4	111.4
Other Fruit—					
Fresh.....Retail wt.	68.4	69.7	66.2	101.9	96.8
Canned.....Net wt. canned	15.4	16.1	16.2	104.5	105.2
Dried.....Processed wt.	6.0	5.9	5.4	98.3	90.0
Juice.....Net wt. canned	5.0	5.6	6.1	112.0	122.0
Frozen.....Retail wt.	1.7	2.4	2.5	141.2	147.1
Vegetables.....Fresh equiv.	96.6	78.1	87.4	80.8	90.5
Fresh—					
Cabbage and greens.....Retail wt.	19.5	19.7	20.7	101.0	106.2
Carrots.....	13.1	15.2	19.4	116.0	148.0
Legumes.....	2.8	2.0	1.9	71.4	67.9
Other.....	36.9	40.7	45.3	110.3	122.8
Canned.....Net wt. canned	19.0	17.8	17.3	93.7	91.1
Frozen.....Retail wt.	1.9	1.8	1.5	94.7	78.9

For footnotes, see end of table.

45.—Per Capita Supplies of Food Moving into Consumption 1959 and 1960, with Average for 1955-59—concluded

Kind of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1955-59 Average	
	Average 1955-59	1959	1960	1959	1960
Oils and Fats.....Fat content	42.5	44.9	44.1	105.6	103.8
Margarine.....Retail wt.	8.2	8.7	9.3	106.1	113.4
Lard....."	7.3	10.3	9.4	141.1	128.8
Shortening....."	9.5	9.2	9.4	98.8	98.9
Salad and cooking oil....."	3.0	3.7	4.1	123.3	136.7
Butter....."	19.7	18.1	16.9	91.9	85.8
Eggs.....Fresh equiv.	36.7	36.0	36.7	98.1	100.0
Meat.....Carcass wt.	141.1	142.6	147.6	101.1	104.6
Pork....."	51.0	58.4	55.2	114.5	108.2
Beef....."	69.0	64.4	69.2	93.3	100.3
Veal....."	8.5	7.5	7.6	88.2	89.4
Mutton and lamb....."	2.7	3.0	3.2	111.1	118.5
Offal.....Edible wt.	5.2	5.0	4.9	96.2	94.2
Canned meat.....Net wt. canned	5.0	4.3	7.5	86.0	150.0
Poultry and Fish.....Edible wt.	32.1	35.5	33.3	110.6	103.7
Hens and chickens.....Eviscerated wt.	21.9	22.0	20.9	100.5	95.4
Other poultry....."	7.0	8.4	6.9	120.0	98.6
Fish and shellfish, fresh and frozen.....Edible wt.	7.2	7.6	7.7	105.6	106.9
Fish, cured (smoked, salted, pickled)....."	1.8	1.8	1.8	100.0	100.0
Fish and shellfish, canned.....Net wt. canned	4.5	3.9	3.2	86.7	71.1
Milk and Cheese.....Milk solids	64.8	65.8	65.4	101.5	100.9
Cheddar cheese ¹.....Retail wt.	5.6	5.7	6.0	101.8	107.1
Other cheese....."	1.2	1.3	1.3	108.3	108.3
Cottage cheese....."	1.1	1.2	1.3	109.1	118.2
Evaporated whole milk....."	18.1	17.5	17.6	96.7	97.2
Condensed whole milk....."	0.8	0.8	0.8	100.0	100.0
Whole milk powder....."	0.2	0.2	0.5	100.0	250.0
Condensed skim milk....."	0.2	0.2	0.1	100.0	50.0
Skim milk powder....."	5.8	7.0	6.6	120.7	113.8
Evaporated skim milk....."	0.6	0.4	0.5	66.7	83.2
Milk in ice cream....."	36.3	39.1	39.1	107.7	107.7
Powdered buttermilk....."	0.5	0.4	0.4	80.0	80.0
Fluid whole milk ²"	394.3	393.5	391.8	99.8	99.4
Beverages.....Primary distribution wt.	9.5	12.0	11.4	126.3	120.0
Tea....."	2.7	2.6	2.4	96.3	88.9
Coffee.....Green beans	8.4	9.4	9.0	111.9	107.1

¹ Fluctuations in apparent per capita flour consumption are caused partly by lack of complete data on flour inventories in all positions. ² Includes soybean flour. ³ Tomatoes canned, tomato juice, tomato pulp, paste and purée. ⁴ Exclusive of Newfoundland. ⁵ Includes process cheese. ⁶ Includes cream expressed as milk.

Disappearance of Meats and Lard.—Production of meats from slaughter in Canada, total supply, distribution and per capita disappearance of meats and lard are shown in Table 46. All estimates are on a carcass-weight basis except canned meats, which are in terms of product.

**46.—Supply, Distribution and Disappearance of Meats and Lard 1956-60, with
Average for 1951-55**

Item	Average 1951-55	1956	1957	1958	1959	1960
Beef—						
Animals slaughtered in Canada..... '000	1,961.8	2,441.2	2,602.5	2,324.4	2,216.1	2,438.4
Estimated dressed weight..... '000 lb.	965,036	1,182,517	1,288,238	1,163,595	1,129,989	1,249,455
On hand, Jan. 1..... "	24,610	29,682	33,251	29,689	31,417	27,958
Imports for consumption ¹ "	15,096	18,266	21,974	26,458	36,182	31,054
Total Supply..... "	1,004,742	1,230,465	1,343,463	1,219,742	1,197,588	1,308,467
Exports ¹ "	45,902	18,634	55,312	63,925	29,959	25,942
Used for canning..... "	12,075	20,713	17,974	19,374	16,651	20,101
On hand, Dec. 31..... "	26,635	33,251	29,689	31,417	27,958	29,058
DOMESTIC DISAPPEARANCE..... '000 lb.	920,130	1,157,867	1,240,488	1,105,026	1,123,020	1,233,366
PER CAPITA DISAPPEARANCE..... lb.	61.6	72.0	74.8	64.8	64.4	69.2
Veal—						
Animals slaughtered in Canada..... '000	1,144.5	1,336.7	1,381.2	1,430.7	1,184.5	1,190.6
Estimated dressed weight..... '000 lb.	119,736	140,220	150,551	150,796	130,532	137,749
On hand, Jan. 1..... "	3,943	4,662	5,701	5,214	4,608	3,925
Imports for consumption..... "	2	2	2	2	2	2
Total Supply..... "	123,679	144,882	156,252	156,010	135,140	141,674
Exports..... "	2	2	2	2	2	2
Used for canning..... "	1,407	1,483	957	1,240	977	959
On hand, Dec. 31..... "	4,257	5,701	5,214	4,608	3,925	4,960
DOMESTIC DISAPPEARANCE..... '000 lb.	118,015	137,698	150,081	150,162	130,238	135,755
PER CAPITA DISAPPEARANCE..... lb.	7.9	8.6	9.0	8.8	7.5	7.6
Mutton and Lamb—						
Animals slaughtered in Canada..... '000	685.2	761.6	766.8	727.2	749.4	839.5
Estimated dressed weight..... '000 lb.	29,824	32,292	33,356	31,779	32,824	35,929
On hand, Jan. 1..... "	3,537	4,816	4,865	4,693	9,490	6,080
Imports for consumption..... "	5,798	9,546	11,015	21,547	20,071	23,532
Total Supply..... "	39,159	46,654	49,236	58,019	62,385	65,541
Exports..... "	632	45	472	1,377	749	109
Used for canning..... "	299	628	558	1,022	3,087	810
On hand, Dec. 31..... "	3,754	4,865	4,693	9,490	6,080	7,880
DOMESTIC DISAPPEARANCE..... '000 lb.	34,474	41,116	43,513	46,130	52,469	56,742
PER CAPITA DISAPPEARANCE..... lb.	2.3	2.6	2.6	2.7	3.0	3.2
Pork—						
Animals slaughtered in Canada..... '000	6,816.9	6,899.3	6,515.5	7,766.4	9,882.7	8,134.6
Estimated dressed weight..... '000 lb.	879,143	887,250	847,015	1,012,739	1,265,971	1,033,097
On hand, Jan. 1..... "	38,675	34,965	20,571	23,821	45,310	56,549
Imports for consumption ¹ "	5,964	154	1,512	1,744	1,416	17,706
Total Supply..... "	923,782	922,369	869,098	1,038,304	1,312,697	1,107,352
Exports ¹ "	43,631	55,408	38,183	63,493	70,042	67,691
Used for canning..... "	76,707	50,574	40,147	47,316	167,145	34,248
On hand, Dec. 31..... "	39,670	20,571	23,821	45,310	56,549	21,264
DOMESTIC DISAPPEARANCE..... '000 lb.	763,774	795,816	766,947	882,185	1,018,961	984,149
PER CAPITA DISAPPEARANCE..... lb.	51.6	49.5	46.2	51.7	58.4	55.2
Canned Meats—						
Estimated production..... '000 lb.	77,903	81,699	69,540	75,909	175,738	67,225
On hand, Jan. 1..... "	28,913	20,775	18,764	18,844	13,833	127,274
Imports for consumption..... "	15,955	13,662	21,274	21,212	19,585	12,487
Total Supply..... "	122,771	116,136	109,578	115,965	209,156	206,986
Exports..... "	22,404	11,442	5,241	6,314	6,843	24,357
On hand, Dec. 31..... "	31,338	18,764	18,844	13,833	127,274	48,473
DOMESTIC DISAPPEARANCE..... '000 lb.	69,029	85,930	85,493	95,818	75,039	134,156
PER CAPITA DISAPPEARANCE..... lb.	4.6	5.3	5.2	5.6	4.3	7.5

For footnotes, see end of table.

**46.—Supply, Distribution and Disappearance of Meats and Lard 1956-60, with
Average for 1951-55—concluded**

Item	Average 1951-55	1956	1957	1958	1959	1960
Offal—						
Estimated production..... '000 lb.	80,422	91,797	93,362	94,339	101,493	97,548
On hand, Jan. 1..... "	5,346	5,042	5,146	5,867	4,946	5,251
Imports for consumption ¹ "	3,508	2,360	3,150	758	2,311	5,063
Total Supply..... "	89,276	99,199	101,658	100,964	108,750	107,862
Exports..... "	6,501	6,831	5,587	11,590	15,397	14,434
Used for canning..... "	2,979	2,285	1,598	2,039	1,628	1,672
On hand, Dec. 31..... "	5,484	5,146	5,867	4,946	5,251	5,068
DOMESTIC DISAPPEARANCE..... '000 lb.	74,312	84,937	88,606	82,389	86,474	86,688
PER CAPITA DISAPPEARANCE..... lb.	5.0	5.3	5.3	4.8	5.0	4.9
Lard—						
Estimated production..... '000 lb.	127,469	126,498	115,791	145,162	184,975	147,157
On hand, Jan. 1..... "	6,429	5,707	4,866	6,823	8,608	7,663
Imports for consumption..... "	5,829	15,301	28,015	5,224	2,736	20,903
Total Supply..... "	139,727	147,506	148,672	157,209	196,319	175,723
Exports..... "	3,557	320	8	475	9,217	1,667
On hand, Dec. 31..... "	6,893	4,866	6,823	8,608	7,663	5,932
DOMESTIC DISAPPEARANCE..... '000 lb.	129,277	142,320	141,841	148,126	179,439	168,124
PER CAPITA DISAPPEARANCE..... lb.	8.7	8.9	8.6	8.7	10.3	9.4

¹ Excluding canned meats. ² Included with beef. ³ Includes commercial lard production and estimated lard equivalent of renderable pork fat available from all uninspected slaughter.

Section 5.—Agricultural Statistics of the Census

A summary of the agricultural statistics recorded by the Census of Canada is normally presented in this Section. Such summary data resulting from the 1961 Census as was available at the time of going to press with this publication (mid-1962) will be found in Appendix II. A complete list of Census publications, with their prices and an order form, is available from the Dominion Bureau of Statistics on request. It is expected that all reports in the Advance Series will be released by the end of 1962, and that the provincial reports in the Volume Series will be released by mid-1963.

PUBLICATIONS OF THE 1961 CENSUS OF AGRICULTURE

Advance Series

Reports in this Series provide published data at earlier dates than the regular series of volume reports and include data relating to the following: areas of field crops; numbers of livestock and poultry on farms; farm machinery and electric power; areas of vegetables, fruits, greenhouses and nurseries; area and use of farm land; a classification of farms by size, economic class and product type; farm woodlots. The Series will also include a bulletin giving a comparison between agricultural data for commercial farms and all farms as defined in the Census.

Volume Series

Reports in this Series represent the main results of the 1961 Census of Agriculture and may be ordered as separate provincial reports or in volume sets. These provincial reports are prepared in such a way that they may be combined within a hard-covered binder (provided with the set) to form the complete subject matter of each Volume.

VOLUME V (PART 1)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick as well as a Canada summary.

VOLUME V (PART 2)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Quebec and Ontario.

VOLUME V (PART 3)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Manitoba, Saskatchewan, Alberta and British Columbia.

Special Series

This Series of 1961 Census reports includes one Census of Agriculture bulletin giving the number and area of farms for counties and census subdivisions.

Section 6. International Crop Statistics

Tables 47 and 48 are based on estimates published on Jan. 26, 1961 and Jan. 25, 1962 by the Foreign Agricultural Service, United States Department of Agriculture, and give the acreages and production of wheat and the production of oats and barley for the harvests of 1960 and 1961 with averages for the years 1950-54 in the leading countries of the world.

**47.—Estimated Acreages and Production of Wheat Harvested in 1960 and 1961
in Specified Countries, with Average for 1950-54**

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1950-54	1960	1961	Average 1950-54	1960	1961
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.
North America¹	91,200	77,030	77,600	1,654,000	1,897,000	1,549,000
Canada.....	26,130	23,198	23,792	537,632	489,624	261,679
Mexico.....	1,647	1,853	2,100	21,788	49,600	51,400
United States.....	63,361	51,896	51,620	1,094,183	1,357,272	1,234,705
Europe¹	71,520	70,370	67,530	1,640,000	1,915,000	1,830,000
Europe, West ¹	46,020	46,260	43,010	1,150,000	1,325,000	1,245,000
Austria.....	573	685	682	16,920	25,800	26,000
Belgium.....	421	498	485	20,278	28,570	25,300
Britain.....	2,263	2,102	1,827	94,640	112,000	93,400
Denmark.....	195	203	259	10,630	11,760	13,400
Finland.....	377	447	586	8,739	13,500	17,400
France.....	10,916	10,769	9,785	315,244	405,000	346,500
Germany, West.....	2,728	3,429	3,435	110,228	181,750	148,000
Greece.....	2,410	2,220	2,630	40,012	61,200	58,500
Ireland.....	362	365	350	12,036	17,200	15,300
Italy.....	12,085	11,300	10,600	288,080	250,000	301,300
Luxembourg.....	45	—	—	1,382	—	—
Netherlands.....	209	313	303	11,376	21,670	17,500
Norway.....	56	22	26	1,682	840	1,000
Portugal.....	1,785	1,920	1,630	23,526	18,800	15,700
Spain.....	10,470	10,230	9,390	155,000	130,000	120,000
Sweden.....	896	836	679	29,640	30,260	30,200
Switzerland.....	225	258	279	9,430	13,300	11,600
Europe, East¹	25,500	24,110	24,520	490,000	590,000	585,000
Bulgaria.....	3,540	3,113	—	66,000	73,500	—
Czechoslovakia.....	1,840	1,610	—	52,500	55,200	—
Germany, East.....	1,120	1,075	—	38,100	50,000	—
Hungary.....	3,400	2,600	2,840	72,500	65,000	70,000
Poland.....	3,730	3,363	—	70,800	84,600	—
Romania.....	6,710	7,010	7,335	108,750	126,750	135,000
Yugoslavia.....	—	5,090	4,843	80,000	131,170	116,500
U.S.S.R. (Europe and Asia)²	111,500	148,500	155,000	1,240,000	1,700,000	1,900,000

For footnotes, see end of table.

**47.—Estimated Acreages and Production of Wheat Harvested in 1960 and 1961
in Specified Countries, with Average for 1950-54—concluded**

Continent and Country	Acreages of Wheat			Production of Wheat		
	Average 1950-54	1960	1961	Average 1950-54	1960	1961
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.
Asia¹	127,820	144,410	136,570	1,765,000	1,920,000	1,830,000
China.....	—	—	—	890,000	—	—
India.....	24,456	32,542	31,750	253,950	376,700	398,000
Iran.....	—	—	—	76,400	96,000	103,000
Israel.....	1,871	—	—	22,210	22,000	26,000
Iraq.....	90	135	106	1,000	1,500	2,000
Japan.....	1,766	1,489	1,603	53,322	56,250	65,400
Jordan.....	651	—	—	5,600	1,600	5,100
Korea, South.....	245	306	—	3,477	5,120	6,300
Lebanon.....	165	128	143	1,902	735	1,290
Pakistan.....	10,380	12,192	11,603	129,124	144,700	141,300
Syria.....	2,277	1,900	—	26,510	12,000	16,400
Turkey.....	13,514	15,600	15,500	213,590	260,000	225,000
Africa¹	16,480	18,580	16,940	185,000	210,000	150,000
Algeria.....	4,267	4,725	4,622	41,508	55,000	24,000
Egypt.....	1,631	1,512	1,436	49,060	55,000	52,800
Morocco.....	3,674	4,099	3,845	37,534	39,200	23,300
Tunisia.....	2,399	3,346	—	19,796	16,600	—
Republic of South Africa.....	3,020	—	—	23,040	28,150	—
South America¹	17,840	15,180	16,660	305,000	235,000	275,000
Argentina.....	11,871	8,893	—	216,204	150,000	190,000
Brazil.....	1,475	1,850	—	18,500	13,000	—
Chile.....	1,910	2,110	2,125	35,764	41,300	—
Colombia.....	430	410	395	4,860	5,300	5,200
Peru.....	410	370	—	5,814	6,000	6,200
Uruguay.....	1,615	1,290	1,240	22,376	15,160	15,400
Oceania	10,832	13,604	14,083	185,870	282,000	219,000
Australia.....	10,716	13,439	13,910	181,150	273,750	210,000
New Zealand.....	116	165	173	4,720	8,250	—
World Totals¹	447,190	487,670	484,380	6,975,000	8,160,000	7,755,000

¹ Estimated totals, which in the case of production are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown. ² Tentative unofficial production estimates.

**48.—Estimated Production of Oats and Barley Harvested in 1960 and 1961
in Specified Countries, with Average for 1950-54**

Continent and Country	Oats			Barley		
	Average 1950-54	1960	1961	Average 1950-54	1960	1961
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
North America¹	1,707,000	1,617,000	1,353,000	519,000	647,000	525,000
Canada.....	417,429	456,134	333,907	228,400	207,036	123,167
Mexico.....	3,750	6,000	6,000	7,554	8,500	8,500
United States.....	1,285,417	1,155,312	1,012,855	283,026	431,309	393,384
Europe¹	1,375,000	1,290,000	1,245,000	775,000	1,295,000	1,295,000
Europe, West ¹	1,020,000	890,000	855,000	561,000	990,000	995,000
Austria.....	24,156	23,600	22,700	13,288	27,050	23,400
Belgium.....	32,462	31,000	29,900	12,344	17,570	18,700
Britain.....	186,774	144,060	135,000	100,326	198,000	226,200
Denmark.....	58,740	46,900	42,025	89,450	128,600	124,500
Finland.....	53,801	76,400	67,200	10,904	20,200	17,900
France.....	242,298	188,400	172,000	89,372	262,500	247,000
Germany, West.....	180,322	150,000	131,800	82,320	147,900	125,000
Greece.....	9,558	10,200	10,500	10,424	10,800	11,000

For footnote, see end of table, p. 444.

**48.—Estimated Production of Oats and Barley Harvested in 1960 and 1961
in Specified Countries, with Average for 1950-54—concluded**

Continent and Country	Oats			Barley		
	Average 1950-54	1960	1961	Average 1950-54	1960	1961
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
Europe—concluded						
Europe, West ¹ —concluded						
Ireland.....	38,744	29,300	26,300	8,910	20,300	27,700
Italy.....	37,516	29,700	38,300	13,057	10,650	12,300
Luxembourg.....	2,602	3,000	—	—	—	—
Netherlands.....	32,210	26,630	28,970	11,048	13,370	17,550
Norway.....	11,726	11,900	12,000	7,350	18,350	19,200
Portugal.....	9,424	4,230	4,260	5,620	2,230	2,400
Spain.....	35,306	29,700	32,500	88,830	71,650	69,800
Sweden.....	58,124	81,000	94,500	14,850	38,900	46,000
Switzerland.....	4,946	3,020	3,050	2,581	3,480	3,850
Europe, East ¹	355,000	400,000	390,000	214,000	305,000	300,000
Bulgaria.....	11,000	13,700	—	16,900	22,800	—
Czechoslovakia.....	61,000	70,000	—	52,100	80,000	—
Germany, East.....	76,600	65,000	—	26,800	55,000	—
Hungary.....	11,000	14,000	10,000	29,500	45,300	45,200
Poland.....	148,000	190,000	—	50,400	57,500	—
Romania.....	26,900	19,600	—	19,500	18,600	—
Yugoslavia.....	19,420	25,700	27,500	16,600	24,300	25,300
U.S.S.R. (Europe and Asia) ²	835,000	750,000	690,000	350,000	525,000	500,000
Asia¹.....	110,000	110,000	100,000	810,000	820,000	820,000
China.....	70,000	—	—	325,000	—	—
Cyprus.....	—	—	—	2,547	1,900	—
India.....	—	—	—	118,280	124,800	127,600
Iran.....	—	—	—	36,798	41,500	46,000
Iraq.....	—	—	—	35,270	36,900	41,300
Israel.....	—	—	—	2,880	1,600	2,000
Japan.....	9,910	11,080	11,950	90,432	95,625	82,970
Korea, South.....	—	—	—	30,440	44,200	37,000
Lebanon.....	—	—	—	760	185	370
Pakistan.....	—	—	—	6,300	7,000	6,300
Syria.....	535	200	—	12,292	5,000	—
Turkey.....	24,958	34,500	27,600	128,380	142,000	142,000
Africa¹.....	21,000	15,000	15,000	150,000	130,000	75,000
Algeria.....	8,940	3,400	1,500	37,494	39,000	—
Egypt.....	—	—	—	4,976	7,140	7,850
Morocco.....	4,103	1,050	1,000	77,000	52,200	25,200
Tunisia.....	1,074	—	—	8,920	6,700	4,000
Republic of South Africa.....	5,800	—	—	2,350	900	—
South America¹.....	67,000	75,000	65,000	65,000	65,000	75,000
Argentina.....	56,284	58,100	50,000	39,320	35,600	45,000
Chile.....	6,800	8,500	8,300	4,316	4,730	5,500
Colombia.....	—	—	—	2,740	4,870	6,000
Ecuador.....	—	—	—	3,030	4,270	3,200
Peru.....	—	—	—	9,980	9,850	—
Uruguay.....	2,816	4,400	—	1,344	2,250	—
Oceania.....	44,560	97,785	77,225	33,738	74,200	53,000
Australia.....	42,252	95,250	75,000	31,350	70,800	50,000
New Zealand.....	2,208	2,535	—	2,388	3,400	—
World Totals¹.....	4,160,000	3,955,000	3,545,000	2,700,000	3,555,000	3,345,000

¹ Estimated totals, which are rounded to millions, include allowances for any missing data for countries shown and for other producing countries not shown.

² Tentative unofficial production estimates.

CHAPTER X.—FORESTRY*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Canada's extensive forests have been an invaluable asset to the country and its people since the earliest days of settlement. The productive portion of these forests has poured increasing wealth into the stream of national income, contributing to the economy of the country as the producer of raw materials for industry and as the source of livelihood for hundreds of thousands of persons. At the same time, the existence of widespread forest cover, productive or unproductive in the sense of human utilization, remains essential to the maintenance of the balance of nature—in protecting water-catchment areas and assuring supplies of water, in lowering the temperature, reducing the velocity of the wind and protecting the land against drought and erosion, and in providing shelter for birds and animals.

Section 1.—Forest Regions†

The forests of Canada cover a vast area in the north temperate climatic zone. Wide variations in physiographic, soil and climatic conditions cause marked differences in the character of the forests in different parts of the country; hence, eight fairly well defined forest regions may be recognized. These regions, with the relative proportion of the total area of all forest regions occupied by each, are as follows:—

Region	Percentage of Forested Area	Region	Percentage of Forested Area
Boreal.....	82.1	Acadian.....	2.0
Great Lakes-St. Lawrence....	6.5	Columbia.....	0.8
Subalpine.....	3.7	Deciduous.....	0.4
Montane.....	2.3		
Coast.....	2.2	TOTAL.....	100.0

* Sections of this Chapter that deal with forestry and the federal forestry program were revised in the Department of Forestry, Ottawa. Provincial forestry programs were prepared by the forestry officials of the respective provincial governments. Sections dealing with forest and allied industries, except as otherwise noted, were revised in the Forestry Section, Industry and Merchandising Division, Dominion Bureau of Statistics.

† A more detailed discussion of forest regions is given in Bulletin 123, *Forest Regions of Canada*, published by the Department of Forestry. Accounts of variations in Canadian physiography and climate are included in a special article on *The Climate of Canada*, appearing in the 1959 Year Book, pp. 23-51.

Boreal Forest Region.—This region comprises the greater part of the forested area of Canada, forming a continuous belt from Newfoundland and the Labrador Coast westward to the Rocky Mountains and northwestward to Alaska. The white and black spruces are characteristic species; other prominent conifers are tamarack, balsam fir and jack pine in the eastern and central portions, and alpine fir and lodgepole pine in the western and northwestern parts. Although the forests are primarily coniferous, broadleaved trees (poplars and birches) form an admixture with the conifers in the central and south-central regions, particularly in the zone of transition to the prairie. To the north, the proportion of spruce and tamarack rises, and with increasingly rigorous climatic conditions the close forest gives way to the open lichen-woodland which in turn merges into tundra. Along the southeastern border of the region there is a considerable intermixture of species from the Great Lakes-St. Lawrence Forest such as the white and the red pines, yellow birch, sugar maple, black ash, and eastern white cedar.

Subalpine Forest Region.—This coniferous forest region is found on the mountain uplands in Western Canada, extending from the United States boundary to the divide separating the drainage of the Skeena, Nass and Peace Rivers from the drainage of the Stikine and Liard Rivers, and from the east slopes of the Rockies to the highlands on Vancouver Island. The dominant species are Engelmann spruce, alpine fir and lodgepole pine, conferring a marked resemblance to the boreal forest. Dominants of the latter—the black and white spruces, and aspen—are intermixed with the subalpine species in many of the eastern and northern parts of the region. There is also some presence of blue Douglas fir at contacts with the Montane forest, of amabilis fir (Coast Forest), of western hemlock and of western red cedar (Coast and Columbia Forests). Other characteristic species are western larch, whitebark pine and limber pine, and on the Coast Mountains the yellow cedar and mountain hemlock.

Montane Forest Region.—This region occupies a large part of the interior uplands of British Columbia, as well as a part of the Kootenay Valley and a small area on the east side of the Rocky Mountains. It is a northern extension of the typical forest of much of the western mountain system in the United States, and comes in contact with the Coast, Columbia and Subalpine Forests. Ponderosa pine is a characteristic species of the southern portions. Blue Douglas fir is found throughout, but more particularly in the central and southern parts; lodgepole pine and aspen are generally present, the latter being particularly well represented in the north-central portions. Engelmann spruce and alpine fir from the Subalpine Region become important constituents in the northern parts, together with white birch. The white spruce, though primarily Boreal in affinity, is also present. Extensive prairie communities of bunch-grasses, sagebrush and forageable herbs are found in many of the river valleys.

Coast Forest Region.—This is part of the Pacific Coast forest of North America. Essentially coniferous, it consists principally of western red cedar and western hemlock, with abundant Douglas fir in the south and Sitka spruce in the north. Amabilis fir and yellow cedar occur widely and, together with mountain hemlock and alpine fir, are common at higher altitudes; western white pine is found in the southern parts. Broadleaved trees—the black cottonwood, red alder and broadleaf maple—are present though of limited distribution. Arbutus and Garry oak occur in Canada only on the southeast coast of Vancouver Island and the adjacent islands and mainland; these species have their centres of population to the south, in the United States.

Columbia Forest Region.—A large part of the Kootenay River Valley, the upper valleys of the Thompson and Fraser Rivers, and the Quesnel Lake area of British Columbia contain a coniferous forest closely resembling that of the Coast Region. Western red cedar and western hemlock are the characteristic species of this "Interior Wet Belt". Associated trees are the blue Douglas fir, which is of general distribution, and, in the southern parts, western white pine, western larch and grand fir. Engelmann spruce from the Subalpine Region is important in the upper Fraser Valley and is found to some extent at the higher levels of the forest in the remainder of the region. At lower elevations in the west and in parts of the Kootenay Valley the forest grades into the Montane Region and, in a few places, into prairie grasslands.

Deciduous Forest Region.—A small portion of the deciduous forest, widespread in the eastern United States, occurs in southwestern Ontario between Lakes Huron, Erie and Ontario. Here, with the broadleaved trees common to the Great Lakes—St. Lawrence Region, such as sugar maple, beech, white elm, basswood, red ash, white oak and butternut, are scattered a number of other broadleaved species which have their northern limits in this locality. Among these are the tulip-tree, cucumber-tree, papaw, red mulberry, Kentucky coffee-tree, redbud, black gum, blue ash, sassafras, mockernut and pignut hickories, and scarlet, black and pin oaks. In addition, black walnut, sycamore and swamp white oak are confined largely to this Region. Conifers are few, and there is only a scattered distribution of white pine, tamarack, red juniper and hemlock.

Great Lakes—St. Lawrence Forest Region.—Along the Great Lakes and the St. Lawrence River Valley lies a forest of a very mixed nature, characterized by the white and the red pines, eastern hemlock and yellow birch. With these are associated certain dominant broadleaved species common to the Deciduous Forest Region, such as sugar maple, red maple, red oak, basswood and white elm. Other species with wide range are the eastern white cedar and large-tooth aspen and, to a lesser extent, beech, white oak, butternut and white ash. Boreal species, such as the white and the black spruces, balsam fir, jack pine, poplars and white birch, are intermixed and in certain central portions, as well as in the east, red spruce is abundant.

Acadian Forest Region.—Over the greater part of the Maritime Provinces, exclusive of Newfoundland, there is a forest closely related to the Great Lakes—St. Lawrence Region and, to a lesser extent, to the Boreal Region. Red spruce is a characteristic though not exclusive species, and associated with it are balsam fir, yellow birch and sugar maple, with some red pine, white pine and hemlock. Beech was formerly a more important forest constituent than at present, for the beech bark disease has drastically reduced its abundance in Nova Scotia, Prince Edward Island and southern New Brunswick. Other species of wide distribution are the black and the white spruces, red oak, white elm, black ash, red maple, white birch, wire birch and the poplars. Eastern white cedar, though present in New Brunswick, is extremely rare elsewhere, and jack pine is apparently absent from the upper St. John Valley and the western half of Nova Scotia.

Section 2.—Forest Resources

The forested area of Canada is estimated at 1,712,868 sq. miles, and about 56 p.c. of that area is capable of producing merchantable timber. Of this productive area, 717,817 sq. miles are now accessible for commercial operations and the remainder, at

present beyond the reach of economical transportation facilities, contains much valuable timber that will be brought progressively into commercial development as demand requires its use and as transportation becomes available. The great areas of forest considered commercially non-productive are nevertheless of significant value to the country in the influence they exert on climate, moisture and soil. Table 1 shows the areas of productive and non-productive forested land in each province and territory. Forested land, classified by type of growth and by province, is given in Chapter I at p. 24.

1.—Productive and Non-productive Forested Land, by Province, 1961

Province or Territory	Productive Forested Land			Non-productive Forested Land	Total Forested Land
	Accessible	Potentially Accessible	Total		
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
Newfoundland.....	28,216	5,661	33,877	53,915	87,792
Prince Edward Island.....	812	—	812	122	934
Nova Scotia.....	15,106	—	15,106	1,283	16,389
New Brunswick.....	23,808	—	23,808	521	24,329
Quebec.....	134,159	86,113	220,272	157,860	378,132
Ontario.....	130,633	35,108	165,741	96,006	261,747
Manitoba.....	37,245	21,422	58,667	64,638	123,305
Saskatchewan.....	25,503	15,505	41,008	76,730	117,738
Alberta.....	112,935	3,809	116,744	42,320	159,064
British Columbia.....	183,500	24,911	208,411	59,227	267,638
Totals, Provinces.....	691,917	192,529	884,446	552,622	1,437,068
Yukon Territory.....	14,200	27,900	42,100	39,100	81,200
Northwest Territories.....	11,700	21,900	33,600	161,000	194,600
Canada.....	717,817	242,329	960,146	752,722	1,712,868

There are more than 150 tree species in Canada, of which 31 are conifers, commonly called 'softwoods'. About two-thirds of these softwoods and 10 p.c. of the large number of deciduous or 'hardwood' species are of commercial importance. Approximately 82 p.c. of the volume of merchantable timber is made up of softwood species. The dominant species existing in each forest region are given in Section 1. Detailed information is contained in Department of Forestry Bulletin No. 61, *Native Trees of Canada*.*

With help from the Federal Government, inventories of the forest resources are made periodically by provincial forest authorities and, with their co-operation, the federal Department of Forestry compiles the National Forest Inventory. The latest estimates of the total stand of timber, by province and region, appear in Table 2. These estimates are subject to constant revision as more accurate and complete inventories are compiled.

The predominant part played by pulp and paper, lumber and other forest product industries in the development of Canada has resulted in a widespread tendency to evaluate the forest in terms of timber alone. However, a growing realization of the economic importance of the forest for its non-commercial values, such as recreation and wildlife and watershed protection, is bringing about increasing recognition of the true value of the forest and is thus developing a broader concept of forestry.

* The sixth edition, 1961, is obtainable from the Queen's Printer, Ottawa, price \$2.

2.—Estimate of Standing Timber, by Type and Size and by Province and Region, 1961

Province or Territory and Region	Coniferous			Broadleaved			Totals		
	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total	Large Material ¹	Small Material ²	Total
Accessible	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.	Million cu. ft.	'000 cords	Million cu. ft.
Newfoundland.....	2,296	129,225	13,280	293	3,755	613	2,589	132,980	13,893
Labrador.....	1,101	63,348	6,485	88	2,185	270	1,181	65,533	6,755
Island.....	1,195	65,877	6,795	210	1,570	343	1,405	67,447	7,133
Prince Edward Island.....	39	672	86	12	460	52	51	1,132	148
Nova Scotia.....	2,149	50,824	6,469	1,529	20,988	3,313	3,678	71,812	9,782
New Brunswick.....	4,299	89,977	11,947	2,652	26,694	4,921	6,951	116,671	16,868
TOTALS, ATLANTIC PROVINCES.....	8,783	270,698	31,792	4,486	51,897	8,899	13,269	322,595	40,691
Quebec.....	6,128	422,268	42,021	2,321	174,540	17,157	8,449	596,808	59,178
Ontario.....	16,785	404,492	51,167	17,633	187,844	33,599	34,418	592,336	84,766
TOTALS, CENTRAL PROVINCES.....	22,913	826,760	93,188	19,954	362,384	50,756	42,867	1,189,144	143,944
Manitoba.....	1,035	56,351	5,825	949	18,169	2,493	1,984	74,520	8,318
Saskatchewan.....	1,232	58,350	6,191	2,773	57,114	7,628	4,005	115,464	13,819
Alberta.....	12,416	197,446	29,199	12,012	133,638	23,370	24,428	331,084	52,569
TOTALS, PRAIRIE PROVINCES.....	14,683	312,147	41,215	15,734	208,921	33,491	30,417	521,068	74,706
British Columbia.....	244,265	677,754	301,874	13,228	60,284	18,352	257,493	738,038	320,226
Northwest Territories....	400	36,000	3,460	360	18,500	1,933	760	54,500	5,393
Yukon Territory.....	400	25,500	2,568	70	6,300	605	470	31,800	3,173
Totals, Accessible.....	291,444	2,148,859	474,097	53,832	708,256	114,036	345,276	2,857,145	588,133
Totals, Potentially Accessible.....	53,808	767,427	119,040	2,877	121,995	13,501	56,685	892,422	132,541
Canada.....	345,252	2,916,286	593,137	56,709	833,251	127,537	401,961	3,749,567	720,674

¹ Ten inches D.B.H. or over (suitable for saw timber).
feet).

² Four to nine inches D.B.H. (units of 85 cu.

Tenure of Forest Land.—Corporations and private individuals own 9 p.c. of the productive forest land of Canada and 91 p.c. is in the possession of the Crown in the right of the federal or the provincial governments. Rights to cut Crown timber under lease or licence have been granted on 20 p.c. of the productive forest land; the remainder comprises unalienated productive forest areas and federal lands such as Indian reserves, military reserves, etc.

Woodlots on the 480,903 farms (1961) across the country comprise about 5 p.c. of the total accessible productive forest. These small wooded tracts, ranging in size from three or four acres to 200 or more acres, are among the most accessible forests in Canada. Also, the woodlots of Eastern Canada are, in general, highly productive because they lie in the southern parts of the country and frequently occupy soils that are considerably higher in quality than those typical of the northern forests.

3.—Tenure of Occupied Productive Forest Land, by Province, 1961
(Net area in sq. miles)

Province or Territory	Provincial Crown Land			Federal Crown Land			Privately Owned Land			Total Occu- pied Pro- duc- tive Forest Land
	Leases and Licences	Permits and Sales	Total	Leases and Licences	Permits and Sales	Total	Farm Wood- lots	Other	Total	
Newfoundland.....	15,245	—	15,245	—	—	—	58	1,715	1,773	17,018
Labrador.....	8,489	—	8,489	—	—	—	—	—	—	8,489
Island.....	6,756	—	6,756	—	—	—	58	1,715	1,773	8,589
Prince Edward Island....	—	—	—	—	3	3	461	348	809	812
Nova Scotia.....	1,148	77	1,225	—	31	31	2,884	8,797	11,681	12,937
New Brunswick.....	10,386	—	10,386	—	414	414	3,100	9,439	12,539	23,339
Quebec.....	65,944	—	65,944	—	227	227	9,171	10,135	19,306	85,477
Ontario.....	82,294	—	82,294	—	1,269	1,269	6,003	10,168	16,191	99,754
Manitoba.....	1,488	1,056	2,544	—	351	354	2,789	1,489	4,278	7,176
Saskatchewan.....	1,363	875	2,238	—	592	592	4,463	1,367	5,830	8,660
Alberta.....	6,653	—	6,653	303	1,338	1,641	4,436	—	4,436	12,730
British Columbia.....	3,834	2,344	6,178	—	811	811	1,727	8,561	10,288	17,277
Northwest Territories.....	—	—	—	28	—	28	—	—	—	28
Yukon Territory.....	—	—	—	11	—	11	—	—	—	11
Canada.....	188,355	4,352	192,707	342	5,039	5,381	35,092	52,039	87,131	285,219

Section 3.—Forest Depletion

General information on forest depletion and increment as well as statistics on forest fires and fire losses are presented in this Section. The scientific control of the influences that account for wastage, such as forest fires, insect pests, etc., is dealt with in Section 4.

The average annual rate and cause of depletion of reserves of merchantable timber during the ten years 1950-59, together with annual data for 1959 and 1960, are given in Table 4. Of the total depletion of the forests in the ten-year period, 92 p.c. was utilized and 8 p.c. was destroyed by fire. (Information on the extent of damage caused by agencies other than fire, such as insects, disease and natural mortality, is not available.) The average annual utilization of 3,182,229,000 cu. feet comprised 48 p.c. logs and bolts, 40 p.c. pulpwood, 10 p.c. fuelwood, and 2 p.c. miscellaneous products. About 5 p.c. of the total utilization was exported in the form of logs and bolts and pulpwood.

The accessible portion of the productive forests of Canada, covering an area of 717,817 sq. miles, constitutes the reserve from which forest production will be obtained for many years to come. The supply of merchantable timber on this area is estimated at 588,133,000,000 cu. feet and the utilization in 1960 of 3,413,500,000 cu. feet therefore represented less than 1 p.c. of the accessible productive volume. However, it should be noted that utilization does not occur evenly throughout the accessible productive forest area but is concentrated on the relatively small area of occupied forest land (land under lease, licence or private ownership). Thus, overcutting may occur on many of these occupied areas, emphasizing the need for orderly management of all commercial forests if the forest industries are to maintain a dominant position in the Canadian economy.

The more efficient utilization of cut timber is an important factor related to forest depletion, for there is little doubt that in the past too high a percentage of the sawn log was discarded. However, changes of great significance have taken place recently in the uses of wood, permitting the utilization of sizes, qualities and species previously considered unmerchantable. The development and manufacture of rayon, cellophane and other products of the cellulose industry have extended the use of wood and the increasing production of plastic-wood products, fibre board and laminated wood has resulted in greater use of inferior grades of wood and species of trees and therefore in the more complete utilization of forest resources and the elimination of much waste.

4.—Forest Utilization and Depletion, 1959 and 1960, compared with Ten-Year Average 1950-59

Item	Usable Wood			Percentage of Total Depletion		
	Average 1950-59	1959	1960	Average 1950-59	1959	1960
	M cu. ft.	M cu. ft.	M cu. ft.			
Products Utilized—						
Logs and Bolts—						
Domestic use.....	1,511,938	1,645,920	1,714,100 ¹	43.7	50.1	45.3
Exported.....	7,863	4,256	5,900	0.2	0.1	0.2
Pulpwood—						
Domestic use.....	1,119,119	1,146,953	1,304,600	32.4	35.0	34.5
Exported.....	160,186	94,136	97,900	4.6	2.9	2.6
Fuelwood.....	318,237	249,314	240,000	9.2	7.6	6.3
Other products.....	64,886	45,808	51,000	1.9	1.4	1.3
Totals, Utilization.....	3,182,229	3,186,387	3,413,500	92.0	97.1	90.2
Wastage—						
By forest fires.....	275,005	94,444	369,600	8.0	2.9	9.8
Totals, Depletion ²	3,457,234	3,280,831	3,783,100	100.0	100.0	100.0

¹ Includes logs for pulping.² The figure for depletion does not include wastage caused by agencies other than fire, such as insects, disease and natural mortality, for which no reliable estimates are available. It represents an average annual depletion of 8 cu. feet per acre on the accessible productive forest area; a much higher rate of depletion occurs on the more accessible occupied productive forest lands.

Forest Fire Statistics.—Forest fires in Canada during 1960 numbered 8,881 as compared with 5,383 in 1959 and an annual average of 5,651 for the years 1950-59. The area burned was more than double the 1959 figure but was considerably less than the average area destroyed in the 1950-59 period. The volume of timber lost by fire in 1960 was nearly four times that lost in 1959, and the actual cost of combating the fires greatly exceeded both the amount spent in 1959 and the average spent during the period 1950-59. All the provinces except Alberta experienced heavier losses in 1960 than in 1959, with British Columbia, Quebec, Saskatchewan and Ontario sustaining the greatest estimated dollar losses.

5.—Forest Fire Losses, 1959 and 1960, compared with Ten-Year Average 1950-59

Item		Average 1950-59	1959	1960
Totals, Fires.....	No.	5,651	5,383	8,881
Fires under 10 acres.....	"	4,509	4,436	7,585
Fires 10 acres or over.....	"	1,142	947	1,296
Area Burned.....	acres	2,093,053	702,475	1,616,344
Merchantable timber.....	"	309,004	91,861	427,117
Young growth.....	"	385,843	121,205	498,162
Cut-over lands.....	"	362,492	268,463	198,316
Non-forested lands.....	"	1,035,714	220,946	492,749
Average Size of Fire.....	acres	370	131	182
Merchantable Timber Burned—				
Large material (10 inches or over D.B.H.).....	M cu. ft.	109,191	15,250	159,696
Small material (4 inches to 9 inches D.B.H.).....	"	165,814	79,194	209,910
Estimated Values Destroyed¹.....	\$	6,357,778	4,428,800	10,409,625
Merchantable timber.....	\$	3,552,172	1,086,165	6,848,201
Young growth.....	\$	1,535,564	1,321,277	2,293,906
Cut-over lands.....	\$	303,950	550,796	595,487
Other property burned.....	\$	966,092	1,470,562	672,031
Actual Cost of Fire Fighting.....	\$	3,741,006	4,254,175	9,204,330
Totals, Damage and Fire Fighting Costs.....	\$	10,098,784	8,682,975	19,613,955
Area under protection.....	sq. miles	..	1,336,954	1,378,508

¹ Figures do not include such values as damage to soil, stream-flow, wildlife, recreation and tourist facilities.

6.—Forest Fire Losses, by Province,¹ 1959 and 1960, compared with Ten-Year Average 1950-59

Item		Average 1950-59	1959	1960
Newfoundland—				
Forest fires.....	No. 176		217	443
Area burned.....	acres 19,430		34,234	70,750
Fire fighting cost and damage.....	\$ 113,377		251,434	410,289
Nova Scotia—				
Forest fires.....	No. 285		254	605
Area burned.....	acres 6,488		2,575	21,266
Fire fighting cost and damage.....	\$ 56,894		10,669	264,203
New Brunswick—				
Forest fires.....	No. 221		261	475
Area burned.....	acres 8,857		5,612	27,490
Fire fighting cost and damage.....	\$ 132,851		54,073	488,399
Quebec—				
Forest fires.....	No. 900		669	874
Area burned.....	acres 190,691		94,889	127,665
Fire fighting cost and damage.....	\$ 1,598,084		2,212,206	4,282,727
Ontario—				
Forest fires.....	No. 1,279		1,005	956
Area burned.....	acres 96,099		5,211	31,386
Fire fighting cost and damage.....	\$ 1,858,440		382,041	1,129,423
Manitoba—				
Forest fires.....	No. 259		155	448
Area burned.....	acres 212,534		27,064	412,149
Fire fighting cost and damage.....	\$ 354,033		96,922	996,650
Saskatchewan—				
Forest fires.....	No. 145		169	236
Area burned.....	acres 71,048		6,444	462,577
Fire fighting cost and damage.....	\$ 138,035		237,206	1,744,830
Alberta—				
Forest fires.....	No. 233		469	474
Area burned.....	acres 289,585		87,959	19,960
Fire fighting cost and damage.....	\$ 2,488,569		2,045,318	798,284
British Columbia—				
Forest fires.....	No. 1,937		1,954	4,113
Area burned.....	acres 439,064		271,315	285,820
Fire fighting cost and damage.....	\$ 2,707,668		3,045,654	9,099,448
Federal Lands—				
Yukon Territory—				
Forest fires.....	No. 60		60	49
Area burned.....	acres 236,556		42,196	21,102
Fire fighting cost and damage.....	\$ 287,754		42,240	31,949
Northwest Territories—				
Forest fires.....	No. 65		78	92
Area burned.....	acres 512,991		110,845	101,682
Fire fighting cost and damage.....	\$ 300,518		277,611	175,373
National Parks—				
Forest fires.....	No. 31		21	36
Area burned.....	acres 2,451		9	9,129
Fire fighting cost and damage.....	\$ 14,929		1,693	116,207
Indian Lands—				
Forest fires.....	No. 55		53	65
Area burned.....	acres 7,254		14,001	25,310
Fire fighting cost and damage.....	\$ 46,540		24,424	75,237
Other Federal Lands (incl. military areas)—				
Forest fires.....	No. 4		18	15
Area burned.....	acres 5		121	55
Fire fighting cost and damage.....	\$ 234		1,484	936

¹ Prince Edward Island is not included, but 1960 was a particularly serious year for forest fires in that province; an estimated 25 fires burned 18,000 acres with damage assessed at \$221,000. Cost of fire fighting is not available.

According to the cause-of-fire classification given in Table 7, lightning again caused the largest number of individual fires in 1960, accounting for 25 p.c. of the total compared with 16 p.c. in 1959 and an average of 19 p.c. for the ten-year period 1950-59. Fires caused by railways made up 23 p.c. of the total in 1960 as against 16 p.c. in 1959 and those started by campfires, smokers and settlers together caused 31 p.c. as compared with 38 p.c. in the previous year. The percentage for "Miscellaneous known", which classification includes fires started as a result of such incidents as falling aircraft, broken power lines and motor vehicle mishaps, dropped from 14 p.c. in 1959 to 8 p.c. in 1960, 2 p.c. below the average for the 1950-59 decade.

7.—Forest Fires, by Cause, 1959 and 1960, compared with Ten-Year Average 1950-59

Cause	Average 1950-59		1959		1960	
	No.	p.c.	No.	p.c.	No.	p.c.
Campfires.....	844	15	766	14	1,014	12
Smokers.....	1,039	18	815	15	1,182	13
Settlers.....	539	10	472	9	507	6
Railways.....	796	14	843	16	2,014	23
Lightning.....	1,077	19	847	16	2,256	25
Industrial operations.....	280	5	324	6	342	4
Incendiary.....	156	3	206	4	302	3
Public works.....	103	2	91	2	102	1
Miscellaneous known.....	565	10	769	14	680	8
Unknown.....	252	4	250	4	482	5
Totals.....	5,651	100	5,383	100	8,881	100

Section 4.—Forest Administration, Research and Conservation

Subsection 1.—Federal Forestry Program

Administration.—The Federal Government is responsible for the protection and administration of the forest resources of the Yukon and Northwest Territories and of other federal lands such as the National Parks, forest experiment stations, military areas and Indian reserves. The Federal Government also administered (until repealed in 1960) the Canada Forestry Act, which provided among other things authority for operation of forest experiment stations and forest products laboratories. The chief responsibility of the Federal Government in the field of forestry is to carry out research in problems affecting the forests and their development, conservation and more effective utilization. Until the passage of new legislation late in 1960, these functions were carried out by the Forestry Branch of the Department of Northern Affairs and National Resources and the Forest Biology Division of the Department of Agriculture. The latter was responsible for all research relating to forest entomology and forest pathology, while the Forestry Branch conducted research in forest economics, in all phases of forestry including silviculture, forest management, forest ecology, tree breeding, forest inventory methods and forest fire protection, and in forest products.

In the summer of 1958, the first representations leading to the formation of a separate Department of Forestry were made by the Canadian Lumbermen's Association, which submitted to the Minister of Northern Affairs and National Resources a brief urging that an extension service be established to bring the results of forest products research to the attention of small operators. Improved informational services were requested and also additional research in specific fields relating to sawmilling and woodworking industries. In the same year, the Canadian Pulp and Paper Association also presented a brief to the Minister asking that forest research programs of the Federal Government be increased substantially.

The House of Commons Standing Committee on Mines, Forests and Waters studied the forestry situation exhaustively during two sessions of Parliament, hearing evidence from many organizations and individuals from all parts of Canada. Its report in 1959 stressed the importance of the forest industries to the nation and recommended in part that a separate Forestry Department should be established and that the functions of the Forestry Branch of the Department of Northern Affairs and National Resources and those of the Forest Biology Division of the Department of Agriculture should be coordinated in the recommended Forestry Department. The Speech from the Throne on Jan. 14, 1960 asked for authorization for "the establishment of a new department to be concerned with affairs relating to the forests of Canada and their most effective utilization and conservation". The Department of Forestry Act received Royal Assent on Aug. 1, 1960 and became effective upon Proclamation on Oct. 1, 1960.

The Department of Forestry Act (which repealed the Canada Forestry Act of 1949) sets out the duties, powers and functions of the Minister of Forestry as extending to and including "all matters over which the Parliament of Canada has jurisdiction relating to the forests of Canada". The Minister is to consult with and inaugurate conferences of provincial or municipal authorities, universities, representatives of industry or other interested persons. The Act provides for the establishment of forestry experimental areas on federal lands and for regulations for the protection, care and management of such areas. It provides also for the submission to Parliament of an annual report on activities of the Department for each fiscal year and for various operational matters.

The *Forest Research Branch* conducts both basic and applied research related to forest management and forest fire control. The basic research is to gain an understanding of the natural processes governing the behaviour of forests and forest fires, while the applied research is concerned with the application of such knowledge in the development of methods for the establishment, growing, harvesting and protection of forests.

Forest management research deals with silviculture, ecology and forest mensuration and inventory. Many of the silvicultural studies involve (a) assessing the factors responsible for the success or failure of natural regeneration following various cutting methods and treatment of seed beds, (b) comparing different methods of seeding and planting, and (c) determining the effects of different methods of intermediate cutting on the development of residual trees and stands. Studies are made of growth and yield and of successional changes in most of the important forest types. Techniques used in mensuration are constantly under review and study; new methods are tested and developed. Application of silvicultural techniques as well as research in regulation of cut and in methods of protection are aimed at determining how forests may be maintained at the highest levels of production. The relationships between forest growth and site are being studied with a view to the assessment of long-term productivity. The requirements of light, temperature and moisture that will produce optimum conditions for growth and development are being determined for the seedlings of many important species of trees. The physiological processes of growth and reproduction are under investigation for a limited number of species. In tree breeding, superior strains are selected or developed and there is a continual improvement in propagation and breeding techniques. Research in forest soils is directed toward determining the relation of tree growth and nutrition to chemical and physical properties of the soil.

Research in forest inventory methods is of increasing importance because of the continuing programs of forest inventories being conducted in most provinces and in the northern Territories. Data from air photographs are correlated with field observations to develop new techniques of timber estimating. The use of stand volume tables and various methods of field sampling are being investigated and compared. Research is continuing in methods for measuring tree images and tree shadows to determine heights, crown widths, canopy density and other data from photographs taken in different seasons of the year under various conditions. The use of large-scale photography of sample areas is also being investigated and studies are being made in the identification of species and sub-types.

Adequate protection of forests against fire is of vital importance in Canada. The Forest Research Branch works in full co-operation with provincial forest services in almost all phases of forest fire control. Major contributions of the Branch have been in the fields of fire danger measurement and fire control planning. Methods of classifying forest fuel types, of using prescribed fires in hazard reduction, of determining the efficiency of fire control organizations, and of preparing and analysing individual fire reports are being investigated. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, and of fire fighting equipment and techniques. Another important field of endeavour is the study of lightning and other fire causative agencies.

The *Forest Entomology and Pathology Branch* conducts research on forest insects and diseases and maintains regional laboratories and field stations in all principal forested regions of Canada. The forest insect and disease survey is a Canada-wide project conducted by the Branch in co-operation with the provincial forest services and forest industries, the primary objective of which is to maintain an annual census of forest insect and disease conditions, and to detect and predict the occurrence of outbreaks. Results of the survey are made immediately available to the owners and operators of forest lands for use in planning salvage programs and directing control operations or other measures to reduce damage. An important secondary objective of the survey is extension of knowledge of the insects and fungi affecting forest trees, including their life histories, ranges of distribution, and host-parasite relationships.

The research programs of the regional laboratories are designed to lead to comprehensive understanding of the biology and ecology of the more destructive forest insects and fungi, and the causes of fluctuations in abundance or severity of damage in time and place. Problems under intensive study include insect defoliators, leaf diseases, sucking insects, dwarf mistletoes, stem cankers, bark- and wood-boring beetles, trunk and root decays, tip- and root-boring insects, and diseases of tree seedlings in forest nurseries. A recent development is the initiation of investigations of virus diseases of forest trees. Laboratory research on development, physiology, nutrition and taxonomy complements the field ecological studies of insects and fungi in the forest environment. Problems of broad national importance in insect pathology, cytology and genetics, bioclimatology and chemical control are investigated by Branch sections, which are appropriately staffed and equipped for research in these special fields.

The Forest Entomology and Pathology Branch also carries out experiments in control, utilizing cultural techniques, chemicals and biological control agents including parasites, predators and insect pathogens. Technical advisory services are provided in evaluating possibilities of eradication or control, or other applications of research results. Recent examples include recommendations for reduction of seedling losses in forest tree nurseries through cultural techniques and chemical applications; the co-operative organization of cull surveys to improve forest inventories; consultation with local authorities on the Dutch elm disease problem in New Brunswick, Quebec and Ontario, designed to limit spread and damage through control of the disease vectors and sanitation procedures; and technical co-operation with provincial governments and industrial agencies in the organization of spraying operations against the spruce budworm in New Brunswick and Quebec, and the black-headed budworm, the saddle-backed looper, and the ambrosia beetle in British Columbia.

The function of the *Economics Division* is to advise the Department regarding the economic implications of present and proposed policies; to keep the economic position of Canada's forest industries under constant review; to keep in touch with forestry and economic developments in other countries; to conduct economic studies relating to forestry in Canada; and to co-operate in international forestry matters of concern to Canada.

Research in the economics of forestry provides the basis for intelligent decisions on the economic aspects of managing forest lands and of utilizing their products and services. It embraces the whole range of economic activities that relate to the use of forest resources,

including the fields of consumption, distribution and processing of the products of the forest. In addition, it provides the information that must be considered to determine the best means of using the forest resources in conjunction with other resources in order to maximize the total net returns to be obtained from the economy. Emphasis is being placed on the economics of production and a greatly expanded program in market research is being developed.

The Economics Division is to be reorganized into five sections: statistical and administrative, forest resources and policy, economics of production, marketing and international forestry. Regional economists will be stationed in selected field offices throughout the country.

The *Forest Products Research Branch* undertakes research embracing every aspect of forest products except that relating to the paper field. This research is directed toward obtaining the necessary background information and data on the properties of Canadian woods, developing new and better uses for wood products, improving manufacturing processes, and effecting more complete utilization of wood substances available from the forest.

Two laboratories, one located at Ottawa and the other at Vancouver, undertake the research program of the Branch. Several phases of research are concentrated at the larger Ottawa Laboratory while the work at the Vancouver Laboratory is concerned mainly with British Columbia and Alberta species. Close relationship with the forest products industries and the users of timber is maintained to ensure that the research work of the Branch is of optimum national benefit. In this connection, assistance is received from an Advisory Committee comprising members representing various timber manufacturers and wood-using groups, which meets periodically to discuss the research requirements of industry.

Research units of the Laboratories consist of: timber engineering, containers, glues and gluing, veneer and plywood timber physics, wood chemistry, wood preservation, paints and coatings, wood pathology, wood anatomy, logging and manufacture, and seasoning. Research activities include the determination of the physical, mechanical and chemical properties of wood and their relation to adaptability in use; studies of the factors affecting the quality of wood and of manufactured wood products; determination of the factors that cause wood waste in logging and manufacturing; research and investigation into the preservative treatment and painting of wood and the use of wood for the manufacture of cellulose, wallboards, alcohols, organic acids, and extractives; studies to determine possible new economic and more valuable uses for woods; and research aimed at determining methods and means for the practical and economical utilization of all wood substances available from the annual timber harvest.

There is constant co-operation with various government units in the performance of many special research investigations concerned with the use of wood. Research into the use of wood in housing construction and as an engineered material continues as an important activity that is undertaken in co-operation with the Division of Building Research of the National Research Council and the Central Mortgage and Housing Corporation. Of special interest was the compilation and publication of the *Forest Products Research Branch Technical Note No. 30*, presenting span tables for wood joists and rafters for housing, based on the use of grade-marked lumber. These have been incorporated in the recently published *Housing Standards, Canada, 1962*.

Additional work includes the application of laboratory findings to the standardization of lumber grades, development and improvement of engineering designs in wood, and the development of timber specifications for the building codes of Canada. Branch personnel serve on such international committees as those of the American Wood Preservers' Association, American Society for Testing Materials, and the Food and Agriculture Organization of the United Nations. Continuous collaboration is maintained with forest products research laboratories in other countries for the dual purpose of exchanging information and avoiding unnecessary duplication of research.

The results of the Branch research are made available to the thousands of plants comprising Canada's timber manufacturing and wood-using industries. By means of numerous technical publications and through other channels, continuous effort is devoted to the widespread dissemination of research results.

The Industrial Liaison Service consists of suitably located field representatives who visit sawmill and other woodworking plants in their respective areas to keep industry aware of research development and technical advances that may assist in the solution of industrial problems. These field representatives also undertake liaison duties to keep the Branch laboratories informed of field problems on which research would be of value.

Federal-Provincial Forestry Agreements.—The passing of the Canada Forestry Act in 1949 was an event of great significance to federal-provincial relations in the field of forestry, as authority was given to the then Minister of Mines and Resources to "enter into agreements with any province for the protection, development or utilization of forest resources". Since that time agreements have been entered into with most of the provinces for federal financial support for programs of forest inventories, reforestation and the purchase of capital assets used in forest fire protection.*

Since 1951, more than \$25,000,000 in federal funds have been contributed to the provinces under forestry agreements, plus \$5,000,000 for aerial spraying against budworm infestations in New Brunswick and, on a smaller scale, in British Columbia. The Federal Government has paid \$9,000,000 for forest access roads built by the provinces since 1958, and \$5,000,000 in the past five years to assist the provinces with capital expenditures for fire prevention, detection and suppression equipment, airfields and improvements, and the hiring of aircraft.

Other work accomplished with federal assistance has included the completion of forest inventories by seven provinces. As a result of these inventories, new woods operations have sprung up, particularly in the British Columbia interior, and new pulp and paper mills have been built or are planned in other areas of Canada. The Federal Government has contributed under the agreements to the establishment of 15 new forest nurseries and the planting of 140,000,000 trees. Reforestation has become more and more geared to, and integrated with, current logging operations. Under a special stand-improvement agreement with the Province of Nova Scotia, designed to provide woods experience for coal miners laid off in the Cape Breton area, the Federal Government is providing \$280,000. Up to early 1962, about 160 miners had been employed under this program.

The Department of Forestry Act 1960, which repealed the Canada Forestry Act of 1949, contains authority for the continuance of this program of federal assistance. A new forestry agreement was entered into with the provinces for a term of two years starting Apr. 1, 1962. This agreement covers in a "single package" the federal aid formerly available under three separate agreements. The amount of federal aid provided for the period is \$16,000,000.

The main feature of the new agreement is flexibility. A province may spend its entire allotment for forest access projects, which include construction of access roads and airstrips for forestry purposes. Up to 60 p.c. of the provincial allotment may be claimed for inventory, reforestation, fire protection and, for the first time, for stand-improvement projects. A province, therefore, has wide discretion in allocating federal aid among the specified fields of work.

Federal assistance is based on payment of 50 p.c. of provincial costs, but reforestation is the one exception. The Federal Government pays \$15 per thousand trees planted, \$2 per acre seeded and \$4 per acre seeded with ground preparation. In addition, one-quarter of the cost of establishing new forest nurseries is contributed.

* The history of the federal-provincial agreements and their relation to the Canada Forestry Act is described in a special article appearing in the 1956 Year Book, pp. 459-466.

There are other changes in the new agreement—costs of management-type surveys are included as sharable, and the reforestation of occupied or unoccupied Crown land qualifies for assistance provided it is carried out by the province.

Subsection 2.—Provincial Forestry Programs

All forested land in provincial territory, with the exception of the minor portions in National Parks, federal forest experiment stations, military areas and Indian reserves (see Table 2, p. 25), is administered by the respective provincial governments. The forestry program of each province is outlined below.

Newfoundland.—Geographically, the Province of Newfoundland has two separate regions—the Island and Labrador on the mainland. The productive forested land of the Island is estimated at 12,998 sq. miles and of Labrador at 20,879 sq. miles, a total of 33,877 sq. miles. Only 578 sq. miles are classified as farm woodlots. Most of Labrador's forests are leased but are as yet virtually untouched.

A large part of the forest land in the interior of the Island is leased, licensed or owned by paper companies, but a three-mile-wide belt along most of the coastline is retained as unoccupied Crown land for the purpose of providing firewood, construction material, fencing material, etc., for the local population. Within this coastal forest belt, every household has legal right to cut 2,000 cu. feet of wood a year for domestic use. This form of cutting is generally without intense control or restriction but a policy is being introduced whereby cutting in certain 'management areas' is controlled by forest officers. Approximately one-half of the Crown forests are at present under management.

Commercial timber-cutting on unoccupied Crown lands has been by permit since 1952; permits for amounts up to 120 cords per person are issued by the field staff but permits for larger quantities must be approved by the government. This type of permit is generally preceded by advertising of standing timber for sale by tender, the timber involved usually being over-mature or damaged by fire, insects or storms.

The Island of Newfoundland is divided into three Forest Regions, each under the control of a Forest Supervisor; the regions, in turn, are each divided into five districts. Districts are headed by a Forest Inspector having a staff of wardens and rangers. Twenty-eight well-equipped forest fire depots and 21 lookout towers, connected by radio-telephone, are operated by the Newfoundland Government, and many others are operated by the two paper companies, the Newfoundland Forest Protection Association and the Canadian National Railways. Aircraft, equipped with water-dropping tanks, are stationed at Gander throughout the fire season; they patrol forest areas and transport equipment and crews when necessary. Helicopters are used as well. Forest fire protection facilities have also been established in Labrador, the main base being at North West River near Goose Airport, and a sub-depot in the Carol Lake iron ore development area. The permanent forestry staff of the Newfoundland Department of Mines, Agriculture and Resources, numbering 75, is augmented by a like number of seasonal employees during the forest fire season. The two paper companies maintain their own fire protection organizations.

Forest research for Newfoundland is performed by the federal Department of Forestry. No reforestation is done in the province.

Prince Edward Island.—Almost all of Prince Edward Island's woodland is privately owned, so that the Forestry Division of the Department of Industry and Natural Resources is concerned mainly with planting, woodlot management and fire protection. A small nursery, established jointly with the Federal Government, deals with the Island's needs by providing planting stock for the reforestation of waste lands, the cost of which is shared by the Federal Government, and fulfilling the requirements of private individuals at a reasonable cost.

In proportion to its size, Prince Edward Island exports a great deal of pulpwood. This export, combined with the fuelwood and lumber cut each year, led to the inauguration of a program designed to educate the owner in the proper care and management of his woodlot.

Fire protection does not usually constitute too great a problem. Wooded areas are scattered in patches throughout the province and, since a network of roads makes all woodlots accessible, equipment can be brought to the scene of a fire quickly and easily. Research is limited mainly to reforestation and woodlot management problems.

Nova Scotia.—The land area of Nova Scotia is 20,402 sq. miles. Of that area, 16,389 sq. miles are classed as forested, 92 p.c. of which is regarded as productive. For Canada as a whole, 91 p.c. of the forested land is held by the Crown in the right of the federal or provincial governments but in Nova Scotia only about 22 p.c. is so held.

The provincial Crown lands are administered by the Department of Lands and Forests through a staff of foresters and rangers. Similarly, trained personnel are associated with the forest industry in the administration of privately owned forest lands. The Department administers the Small Tree Conservation Act on all lands and is responsible for forest fire suppression on all lands, regardless of tenure. Forest fire detection is facilitated by 30 observation towers and an aerial patrol service, all integrated with land vehicles and headquarters by radio and telephone communication systems. Well-equipped fire suppression crews and rangers are stationed throughout the province.

The forest industry is of prime importance to the economy of Nova Scotia. There are some 500 sawmills of all sizes, one newsprint mill and two pulp mills in operation. A new chemical pulp mill was completed to the test-running stage. These mills, along with the pulpwood export trade, pit prop production, boxwood and barrel production, as well as other facets, use 289,000,000 ft.b.m. of lumber and 342,000 cords of round products. The lumber industry underwent changes in 1961 when several large, modern and more efficient stationary mills were established. Such installations produced the equivalent of 7,900 cords in chips from sawmill waste.

An active reforestation program has been conducted for many years. Although not as ambitious an undertaking as in some parts of Canada, the program is being expanded in areas where there are less fortunate circumstances relative to natural regeneration. There are six forest nurseries in operation throughout the province. Forest management programs include the construction of access roads into Crown land timber areas and stand improvement under the federal-provincial agreement. Timber, pulpwood and Christmas trees are sold through public tender and cutting is done under the recommendation of the district foresters of the Department of Lands and Forests. Inventory surveys, regeneration studies and experimental cuttings are conducted on Crown lands.

Forest research is carried on by Federal Government agencies and the Nova Scotia Research Foundation (see p. 342). Investigations involve stand improvements, cutting methods, and insect and disease activities. Extension projects include an active fire prevention campaign, a motion picture program for schools, distribution of information on forest and wildlife conservation, promotion of the Christmas tree industry, and preparation of articles for general distribution, for newspapers and for magazines.

New Brunswick.—More than 85 p.c. of the area of New Brunswick is classed as productive forest, of which the Crown, in right of the province, owns about one-half. About 2 p.c. is owned by the Federal Government and the remainder is privately owned. The report of a provincial forest inventory, part of the national forest inventory, was published in 1958. The productive forest area is estimated at 23,808 sq. miles and the total volume of wood in merchantable sizes at 16,900,000,000 cu. feet; of the latter, coniferous species make up 71 p.c. and deciduous species the remainder.

Protection from forest fires, the first requirement for forest conservation, is mainly the responsibility of the Department of Lands and Mines which also carries out duties in connection with game management and protection, colonization, parks, campgrounds

and picnic sites, and the administration of provincial Crown lands. A large-scale aerial spraying program to protect balsam fir and spruce from the spruce budworm has been carried on since 1952 by a Crown company sponsored by the federal and provincial governments and representatives of the forest products industries.

Timber licences issued by the province authorize operators to cut and remove forest products in accordance with forest management plans and cutting permits. Stumpage dues are paid to the province when products are cut by the licensees.

New Brunswick does not maintain a forest research organization but co-operates with the federal Department of Forestry in that field. The University of New Brunswick also has undertaken a small number of forest research projects in co-operation with the National Research Council, the provincial government, and other interested organizations. In the autumn of 1960, the New Brunswick Department of Agriculture employed a forestry engineer as a first step in developing and expanding a provincial tree farm program.

Quebec.—The forested lands of the Province of Quebec cover an area of 378,132 sq. miles extending from its southern borders to latitude 52° north, between the frontier of Labrador in the east, and the Eastmain River Basin in the west. Of this total, 89,131 sq. miles are classed as occupied productive forest land, 23,175 sq. miles of it privately owned, 227 sq. miles federal Crown forests and the remainder provincial Crown land on which leases and permits have been granted. Thus, approximately 256,000 sq. miles of the forest lands of Quebec are inaccessible or vacant. About two-fifths of the annual cut comes from privately owned lands.

The limits reserved for forest industries are administered by the Department of Lands and Forests and the technical work such as inventory, reforestation, supervision of cutting, control of culling, verification of plans for development, collection of stumpage dues, etc., is the responsibility of the Forest Service. These limits are either leased by auction after public notice has been given or assigned under a special law. The price of the licence is fixed by auction or by Order in Council subsequent to specific legislation. The government reserves the right to dispose of the water powers situated on the limits leased.

A tree-felling permit, which is valid for one year, is renewable if the holder has complied with the conditions imposed; it may be transferred with the authorization of the Minister of Lands and Forests. The lessee of a limit must pay a ground rent in addition to the price of licence and must forward, three months before the cutting begins, a plan of operations. Wood cut must be measured by a licensed culler and at the end of the operations the limit holder must produce a sworn statement of quantities cut.

The Forest Service endeavours to promote the use of silvicultural methods among the owners of farm woodlots and small forest areas.

Quebec's forest protective system comprises three organizations—the Protective Service, the protective associations and the non-affiliated lease holders or owners. The Protective Service is a government body established within the Department of Lands and Forests in 1924 to enforce legislation and regulations governing forest fire protection and to protect vacant Crown lands, township reserves and colonization territories. The protective associations, of which there are six, are syndicates of lease holders and of owners who have availed themselves of their right to form an association to satisfy the law which compels them to protect their limits or private forests of 2,000 acres or over. Members assume operating expenses in proportion to the area owned by each but the Department assumes half the costs of fire fighting incurred by the associations. The third group is composed of lease holders and of owners who prefer to discharge their obligations personally as far as forest protection is concerned. They enjoy the same privileges and their obligations are the same as those imposed upon the associations.

To perpetuate the forestry program of the province, the Department has established a number of nurseries, the first at Berthierville in 1908. This nursery has three sections: one wooded with a variety of valuable species of mature age, one serving agricultural

purposes, and another devoted to forestry experiments and the cultivation of trees for reforestation or ornamentation. More recently, the Grandes Piles nursery and the Gaspé nursery were organized and there are also nurseries in the following counties: Abitibi-East, Témiscamingue, Saguenay, Îles de la Madeleine, Rimouski, Roberval, Rivière du Loup, Témiscouata and Chicoutimi. Their object is the preparation of plants for reforesting nearby districts. 'Floating' nurseries, supervised by the engineers of the Forest Extension Bureau and intended especially for growing reforestation plants for private properties, are located at Pont Rouge, Sherbrooke, Scott, St. Hyacinthe, Victoriaville, Mont Joli and St. Pascal. The plants are supplied free of charge on request. A dynamic reforestation program is now under way in the province, with an ultimate objective of 10,000,000 plants yearly on private grounds.

The Bureau of Silviculture and Botany and the Forestry Products Laboratory, both subsidized by the Department, are actively engaged in scientific research work in the forestry field. The Bureau studies the possibilities of utilizing spoil-heaps of gold and asbestos mines, tests the fertility of soils in the spruce groves, classifies forests according to type of vegetation, and studies growth and yields of stands in the timber limits by means of permanent research spots. The Forestry Products Laboratory, located at the Duchesnay Forestry Station, studies developments in the field of chemical conversion of wood and in the use of forestry by-products.

Ontario.—Steady advancement in the management of the province's natural resources continued during 1961 with a progressive revision of the management plans for the forested land under the jurisdiction of the Department of Lands and Forests. The forested land, including 42 agreement forests of 147,297 acres and five nursery forests of 9,000 acres, was divided into 202 areas, each covered by a management plan. This was a decrease of 18 units from the previous year as a result of consolidation. Seventy-six Crown management units, with plans prepared by departmental staff, made up 53,695,819 acres. Of these, 65 plans were in operation covering 50,219,541 acres and 11 plans were under revision. Also included were 79 company management units with an area of 62,069,120 acres, for which plans were prepared by licensees; 64 of these plans were in operation, covering 47,057,280 acres.

The volume of wood of all species cut from Crown land during the year ended Mar. 31, 1961 showed an increase of approximately 52,500,000 cu. feet over the volume cut during the previous fiscal year; this represented an increase of 15.4 p.c. in the cut of softwood species and 12.5 p.c. in the cut of hardwoods. The primary pulpwood species (spruce, balsam and jack pine) showed an increase in the volume cut of about 41,200,000 cu. feet, which accounted for 78.5 p.c. of the increased production.

During the 1961 fire season, 1,305 forest fires were reported in Ontario. These fires burned a total area of 1,184,998 acres. The greatest incidence of fires and area burned occurred during the last two weeks of June and the first two weeks of July in the north-western Ontario fire districts of Sioux Lookout and Kenora where extreme drought conditions were caused by a deficiency of rain and winter snowfall. A succession of lightning storms during this period resulted in a large number of fires which accounted for over 99 p.c. of the area burned. During 1961, lightning caused 34 p.c. of the total number of fires and human causes accounted for the remainder. More than 90 p.c. of the 1961 timber loss was located in the northern portion of the Sioux Lookout district; inaccessibility makes the timber in this area of little economic value at present.

The Department's fleet of 44 aircraft played a major role in fire fighting operations and the use of aircraft for water-dropping very often restricted the losses. This technique was employed on 104 fires during the 1961 season and 843,000 gal. of water were discharged. The fleet was supplemented by the use of five leased helicopters. Over the whole season, Department aircraft logged 12,568 hours of flight time, 5,000 of which were on fire fighting operations. The remainder included flying for fishery, wildlife, timber management, administrative and mercy services.

Manitoba.—The forests of Manitoba are administered by the Forest Service, a Branch of the Department of Mines and Natural Resources. The Service is headed by a Provincial Forester and for purposes of administration the province is divided into eight Forest Regions each in charge of a Regional Supervisor responsible to the Provincial Forester for forest activities within his region. The Forest Service is also responsible for the development, maintenance and operation of parks and recreation on Crown lands throughout the province.

The cutting of timber is governed by timber sale, licensed timber berth, pulpwood lease, or timber permit. Timber sales are disposed of by public auction or sealed tender and cover periods of from one to seven years; timber berths cover certain areas granted before 1930, the date of the transfer of the natural resources from the Federal Government to the province; pulpwood leases are granted over an area of 2,748 sq. miles; and timber permits are granted to settlers and small operators at appraised rates for a period of one year or less. On the basis of a forest resources inventory completed in 1956 and other information, working plans with annual allowable cuts on a sustained-yield basis have been brought into operation in the more accessible areas.

Forest fire protection is a most important activity of the Forest Service. Fires are detected by air patrol, lookout tower and road patrol, and rapid communication is maintained within the Service by radio and telephone. The Air Service transports men and equipment to fires in areas beyond the reach of roads. The main air base is at Lac du Bonnet and summer air bases are maintained at The Pas, Norway House and Thicket Portage. The total area under fire protection is about 97,000 sq. miles.

Regeneration of the forest is dependent mainly on natural means although 8,069,000 trees were planted during the past ten years as part of the federal-provincial agreement (see p. 457). The Pineland Forest Nursery is operated at a point near Hadashville to supply planting stock for denuded areas of Crown land and to furnish farmers with shelter-belt and woodlot seedlings.

The province has no forestry research organization but co-operates with several federal services which maintain two research areas. The Department co-operates fully with federal authorities in investigating and controlling forest damage resulting from insects and diseases. The Forest Service also carries out public education in the fields of fire prevention and forest conservation. Use is made of all usual methods including radio, television, newspapers, signs, talks to school children and club members, film tours, etc.

Saskatchewan.—The forests of Saskatchewan, including watered areas, are located mainly in the northern half of the province and cover 147,360 sq. miles or 58 p.c. of the total area. Provincial forests constitute approximately 92 p.c. of all forest land in the province and are managed and developed by the Forestry Branch of the Department of Natural Resources.

The Forestry Branch, consisting of six divisions—Administration, Fire Control, Forest Management, Forest Research, Inventory and Silviculture—is responsible for developing and evaluating forest policies and management programs based on the findings of inventory and research. The responsibility for carrying out such policies and programs is borne by the Regional Administration Branch. For purposes of resource administration, the province is divided into five regions, each under the supervision of a Regional Superintendent. The regions are subdivided into Conservation Officer Districts which vary in size according to resource base and population to be served. Close liaison is maintained between the Forestry Branch and the Regional Administration Branch.

A major responsibility of the Forestry Branch is the development of techniques in the prevention, detection and suppression of forest fires. A network of 69 lookout towers equipped with two-way radios is maintained throughout the province and is supplemented by three aircraft on regular patrol duty during the high-hazard periods. A group of smoke-jumpers, trained to parachute on remote fires, is in constant readiness during the fire season and takes immediate suppression action which it maintains until relieved by

overland crews. Northern Saskatchewan's communication system, with more than 850 two-way radio sets in operation in towers, vehicles, aircraft and forest camps, plays a vital role in the detection and suppression of forest fires. These activities have been assisted recently by the use of helicopters.

Alberta.—The 159,064 sq. miles of provincial forest in Alberta are administered by the Forests Division of the Department of Lands and Forests at Edmonton. The Division is composed of four forestry branches under a Director of Forestry—Administration, Forest Protection, Forest Management and Forest Surveys.

The Administration Branch supervises all branches, maintains general control over revenue and expenditure, deals with personnel and conducts a Forestry Training School which offers in-service training for forest officers and other employees.

The Forest Protection Branch has charge of the protection of the forests and of all field personnel. For ease of administration the forested area has been divided into seven Divisions, each responsible for the forest within its boundary. These Divisions are composed of Ranger Districts in which all activities are supervised by the district forest officer responsible to his divisional superintendent. The divisional staffs include: forest superintendent, assistant forest superintendent, divisional forester, chief ranger, mechanical foreman, chief check scaler, assistant check scaler, divisional clerk, assistant clerk, radio operator, stenographer, and seasonal help such as standby fire crews, forest lookout men and general labourers and construction crews. These employees are responsible for fire prevention and suppression, supervision of logging and milling operations, timber cruising, and construction and maintenance of forestry projects.

The functions of the Forest Management Branch include the approval and acceptance of management and annual operating plans prepared for other Crown lands, proper land use, proper disposal of Crown timber and the direction of field officers in the administration of all contracts related thereto. This extends to all phases, including acceptance of applications, cruising of timber, drawing up of contracts, periodic inspections of areas to assure proper logging and utilization practices, scaling of products cut, collection of dues and reforestation of areas denuded through cutting, fire, etc.

The Forest Surveys Branch maintains the provincial forest inventory and prepares and maintains detailed inventories by management units; prepares long- and short-term management and protection plans; provides timber application forest-type maps; conducts other work pertaining to photogrammetry and forest-cover maps; and provides technical drafting and mapping services to the Forest Service and general public.

Conservation of 9,000 sq. miles of forest comprising the Rocky Mountains Forest Reserve is administered by a joint provincial-federal agency—the Eastern Rockies Forest Conservation Board with offices at Calgary (see p. 107). The area is composed of three forests which are subdivided into ranger districts. The Superintendent in charge of each forest is responsible to the Director of Forestry; his decisions are based on policies formed by the Board, which comprises one federal and two provincial members. This Reserve includes the headwaters of the main prairie river system.

Research in general is carried out by the federal Department of Forestry, which maintains the Kananaskis Experiment Station.

British Columbia.—The productive forest land of British Columbia in 1958 was inventoried at 208,411 sq. miles and, in addition, there were 59,227 sq. miles of forest land classed as non-productive. Of the productive area, immature timber occurred on 95,739 sq. miles; 84,275 sq. miles carried matured timber with a total volume of 318,000,000,000 cu. feet; 28,397 sq. miles, including areas of recent burn, cut-over or windfall not yet re-stocked, were unclassified.

For administrative purposes, the province is divided into five Forest Districts with regional headquarters at Vancouver, Prince Rupert, Prince George, Kamloops and Nelson. Further decentralization of authority is effected by subdivision of the Forest Districts

into Ranger Districts. There are approximately 25 Ranger Districts in each Forest District. Twelve directional, servicing or policy-forming divisions constitute the head office of the Forest Service at Victoria.

Vigorous efforts continue to bring British Columbia's forest resources under sustained-yield management and the forest industries are making definite progress toward more complete utilization of their raw materials. The problem is urgent despite the fact that, with a present annual cut of approximately 1,100,000,000 cu. feet, the total inventory would appear sufficient to support present needs in perpetuity. One of the more spectacular results of sustained-yield administration has been the swinging of a greater proportion of the annual forest harvest to the interior of the province. For many years, the over-cut coast (wet belt) forests have accounted for from 65 p.c. to 80 p.c. of the total forest cut each year. More recently, however, the interior cut has risen to account for almost 50 p.c. of the total provincial scale. For all practical purposes, the entire interior forest is publicly owned; the great majority of privately owned, leased or licensed forests are on the coast.

Several systems of timber disposal are in effect. The most publicized is the Tree Farm Licence, which constitutes a contract between the government and a company or individual whereby the latter agrees to manage, protect and harvest an area of forest land for the best possible return, in exchange for the right to the timber crop on the area. Tree-farm Licences are subject to re-examination for renewal every 21 years. Provincial Forests, Public Working Circles, and Sustained-Yield Units are the governmental equivalent of the Tree Farm Licence with the timber, when it is ready for cutting, being disposed of by public auction. Management, silviculture, roadbuilding and protection on such areas are the responsibility of the Forest Service. Other tenures of lesser importance are Tree Farms, Farm Woodlot Licences, and those Timber Sales issued outside 'regulated' areas.

The need for a more effective forest fire suppression capability becomes increasingly urgent as the program of planned, sustained-yield management of the resource expands. Improved fire fighting techniques, the use of aircraft for patrol, transportation and fire bombing, employment of helicopters for rapid movement of fire suppression crews, and a gradually expanding system of lookouts are employed. However, the problem of accessibility remains a most serious one. The fire seasons of 1958, 1960 and 1961 were in the disaster class with total fire fighting costs for these three years amounting to \$15,700,000 plus a loss of potential Crown revenue and the value of unmanufactured logs destroyed by fire over those three years totalling some \$190,500,000. Close liaison with the federal Department of Forestry, which maintains laboratories in Vernon and Victoria, provides information about insect and fungal enemies of the forest.

Subsection 3.—The Pulp and Paper Research Institute of Canada*

The Pulp and Paper Research Institute of Canada is a centre of research and learning concerned with virtually every aspect of the production and use of pulp and paper products. It was established in 1913 as a branch of the Dominion Forest Products Laboratories and in 1927 was reorganized under the joint sponsorship of the Canadian Pulp and Paper Association, the Federal Government and McGill University. The Institute staff carries out fundamental research and some applied research in the fields of woodland operations and pulp and paper mill operations. In addition, in co-operation with McGill University, it trains postgraduate students who are working toward master's and doctorate degrees in physical chemistry, wood chemistry, or chemical and mechanical engineering, and whose theses subjects lie in fields of interest to the pulp and paper industry.

The Institute has occupied, since 1927, a building on the McGill campus erected by the pulp and paper industry and in addition since 1958 a new building at Pointe Claire on the western outskirts of Montreal constructed by the Government of Canada in lieu of its former annual financial grant. The new building houses Institute staff and facilities

* Prepared by B. W. Burgess, Secretary, Pulp and Paper Research Institute of Canada, Montreal, Que.

formerly located in temporary quarters. The Institute's facilities include: organic and physical chemistry, physics, hydraulics and engineering laboratories; pilot plants for chemical pulping, pulp and chip refining and waste liquor pyrolysis; a greenhouse and other facilities for woodlands research; an extensive library; shops and special facilities for pulp and paper testing and for photographic and microscopic (both light and electron) studies of wood, pulp, and paper. It has a staff of about 160.

The Institute's research activities comprise a basic program in pulp and paper research and in woodlands research, contract research, and technical services. The basic pulp and paper research program is supported by assessments from the Maintaining Membership (some 42 companies, representing more than 100 mills and about 95 p.c. of the total production of the Canadian industry) and by a basic grant from the Canadian Pulp and Paper Association. The woodlands research program is supported by assessments on all member companies of the Canadian Pulp and Paper Association east of the Rockies that use pulpwood. Both programs comprise research of interest to the industry broadly, as distinct from that which is the concern of a single company only.

The projects in the basic programs range from studies of the growing seedling in the forest to the converted pulp and paper product, and fall into seven broad classifications: woodlands, mechanical pulping, chemical pulping, paper making, process control, product quality and waste utilization. The emphasis is primarily on fundamental and exploratory studies. The Institute is regarded as a centre for broad, long-range and uninterrupted studies of basic principles which individual pulp and paper companies would find difficult to justify in terms of immediate applied objectives. Moreover, the Institute is a centre of highly specialized equipment and manpower which individual companies would not normally have.

In addition to its permanent staff, the Institute, in co-operation with McGill University, has some 35 graduate students working on fundamental projects in the background of pulp and paper technology, which also serve as their theses topics. The head of the Institute's Wood Chemistry Division, who is also Chairman of the Chemistry Department and the E. B. Eddy Professor of Industrial and Cellulose Chemistry at McGill, directs graduate student work on such subjects as the behaviour of the materials of which wood is made—cellulose, lignin and hemicelluloses. The head of the Institute's Physical Chemistry Division, also a Research Associate in the McGill Chemistry Department, directs graduate student work in the physical chemistry of fibres, e.g., the forces that cause cellulose fibres in a water suspension to mat together to form paper. The head of the Institute's Chemical Engineering Division, an Associate Professor of Chemical Engineering at McGill, directs graduate students in such chemical studies as the rate of drying of droplets and fibres. These Division Heads are assisted by other members of the Institute's staff who likewise hold concurrent honorary positions at McGill.

The Institute also undertakes contract research projects on a cost-reimbursement basis for individual companies or groups of companies in the pulp and paper or allied fields. The larger of these co-operative contracts have been concerned with problems of particular segments of the Canadian pulp and paper industry, such as the investigation into the causes of corrosion in alkaline pulping equipment and the recent study of the rapid deterioration of paper machine wires.

A further function of the Institute is to provide a broad range of technical information services to the industry and, to some extent, to other industries and the public. It maintains a specialized library for this purpose which stocks bibliographies, abstracts, translations and critical reviews for the use of the scientific staff and the industry.

Section 5.—Forest and Allied Industries

This Section is concerned with the many industries employed in the felling of timber in the forest and its transformation into the numerous utilitarian shapes and forms required in modern living. The basic industries provide the raw material for sawmills,

pulp and paper mills and for a wide range of secondary industries that convert the products of the basic industries into more highly manufactured goods such as veneers and plywoods, sash and doors, furniture, and a vast range of industries using wood in any form in their processes. These industries, especially the pulp and paper industry and the lumber industry, contribute substantially to the value of the export trade of Canada and thereby provide the exchange necessary to pay for a large share of the imports purchased from other countries, particularly the United States.

Technological changes and market shifts are causing Canada to lose some of the unique advantages it enjoys in the forest products field. In an effort to remain competitive, changes are being brought about in the structure of Canadian forest-based industries and in the technologies employed. Much emphasis is also being placed on better utilization of the forest resources.

In British Columbia there is a continuing development of the pulp and paper industry which, unlike that in Eastern Canada, is integrated to a high degree with the lumber industry. An important feature of this integration is the use of smaller and defective logs uneconomical for the manufacture of lumber, and the use of sawmill and veneer mill residue in the form of pulp chips. In Eastern Canada the most significant developments in the pulp and paper industry have been the increasing use of hardwood species for pulp manufacture and the increase of speeds in paper machines which has improved productive capacity at relatively low costs. There is also continuing construction of new plants, notably in the Maritime Provinces, and this is leading to improved utilization through the use of sawmill residues for pulping material.

Significant changes are also taking place in the lumber industry in Eastern Canada. Sawmills are undergoing a gradual process of concentration into larger and more efficient units and employing modern electric, hydraulic and pneumatic equipment which permits a high degree of mechanization and quality control. There is also a trend toward more complete integration through the acquisition of veneer and plywood mills and board plants. These factors are naturally leading to a higher degree of utilization which is exemplified by the conversion of sawmill residue for pulp chips.

The logging industry has been highly mechanized in Western Canada for a number of years and mechanization is now progressing rapidly in Eastern Canada, raising the output per man-day and leading to stabilization of employment in the woods. Ten years ago mechanical saws were just beginning to find general acceptance, but now they are found in all woods operations and the buck-saw is almost non-existent. Loading and transportation of logs and pulpwood is being done mechanically to an increasing extent with a consequent continuous reduction of the horse population in the woods. New and better logging machines are constantly being developed and experiments with pulpwood harvesting combines promise a high degree of mechanization in the woods wherever terrain conditions permit.

These and other changes are reflected in the following statistical data.

Subsection 1.—Woods Operations

In connection with operations in the woods, the forests provide not only the raw materials for the sawmills, pulp mills, veneer mills, charcoal, excelsior and other plants, but also the logs, pulpwood and bolts for export in the unmanufactured state, and fuel, poles, railway ties, posts and fence rails, mining timber, piling and other primary products that are finished in the woods ready for use or export. A number of minor forest products help swell the total, such as Christmas trees, cascara bark, balsam gum, resin, etc.

Estimates of woods operations attempt to give actual production figures for all items and are based partly on provincial forest service data for volume. Value, as currently estimated, excludes transportation costs.

8.—Value of Woods Operations, by Product, 1956-60

Product	1956	1957	1958	1959	1960
	\$	\$	\$	\$	\$
Logs and bolts.....	443,888,332	409,226,544	311,746,286	344,424,102	385,924,315
Logs for pulping.....	33,581,745	25,827,900	21,489,973	32,114,964	45,335,719
Pulpwood.....	385,889,223	314,407,202	253,663,933	288,129,343	311,579,147
Fuelwood.....	37,097,923	36,656,139	29,105,108	26,519,755	36,895,661
Poles and piling.....	23,219,870	20,930,794	8,146,102	7,495,040	11,966,822
Round mining timber.....	3,615,647	3,032,954	2,568,121	2,136,621	1,880,798
Fence posts.....	2,286,222	2,644,749	2,369,596	2,955,812	3,384,877
Hewn ties.....	626,481	664,683	317,262	235,131	159,998
Fence rails.....	292,183	326,877	275,820	267,970	253,573
Wood for charcoal.....	487,847	502,170	459,750	448,000	430,196
Miscellaneous roundwood.....	130,445	102,759	803,355	1,514,855	1,630,533
Other products.....	8,026,684	8,731,727	7,665,202	9,474,407	7,046,849
Totals.....	939,142,602	823,054,498	638,610,508	715,716,000	806,488,488

9.—Production and Consumption of Wood Cut in Woods Operations, 1951-60, and by Product 1960

Year and Product	Production			Consumption		
	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood ¹	Total Value	Quantity Reported or Estimated	Equivalent Volume of Merchantable Wood ¹	Total Value
		M cu. ft.	\$		M cu. ft.	\$
1951.....	...	3,426,463	821,021,875	...	2,922,883	698,113,030
1952.....	...	3,205,383	763,188,754	...	2,834,719	705,980,443
1953.....	...	3,078,066	704,538,888	...	2,903,661	705,452,273
1954.....	...	3,122,313	728,369,907	...	2,924,832	693,755,990
1955.....	...	3,280,070	829,572,714	...	3,093,255	746,954,072
1956.....	...	3,463,304	939,142,602	...	3,083,626	813,590,871
1957.....	...	3,172,166	823,054,498	...	2,918,522	767,606,567
1958.....	...	2,854,670	638,610,508	...	2,837,204	680,015,210
1959.....	...	3,186,387	715,716,000	...	3,175,452	782,771,247
1960.....	...	3,405,417	806,488,488	...	3,247,584	815,541,385
Logs and bolts..... M ft. b.m.	9,030,575	1,728,012	385,924,315	8,818,325	1,763,665	394,731,623
Logs for pulping..... "	1,111,442	196,649	45,335,719	2	2	2
Pulpwood..... cord	13,997,080	1,189,352	311,579,147	14,115,996	1,199,860	361,858,672
Fuelwood..... "	3,003,811	240,304	36,895,661	3,001,021	240,081	38,396,382
Poles and piling..... No.	1,258,389	18,875	11,966,822	1,020,281	15,454	12,625,895
Round mining timber..... No.	102,171	8,684	1,880,798	95,048	8,079	1,727,968
Fence posts..... No.	12,378,659	14,853	3,384,877	9,798,790	11,757	3,408,186
Hewn ties..... "	112,718	563	159,998	112,718	562	159,998
Fence rails..... "	1,038,200	1,038	253,573	1,038,200	1,038	253,573
Wood for charcoal..... cord	39,363	3,149	430,196	39,363	3,149	449,878
Miscellaneous roundwood..... cu. ft.	...	3,938	1,630,533	...	3,938	1,640,378
Other products ²..... \$	...	...	7,046,849	...	...	290,832

¹ In estimating the annual drain on Canada's forest resources, certain converting factors have been used, each of which represents in cubic feet the quantity of merchantable wood used to produce one unit of the material in question. The factor for logs and bolts for the British Columbia coastal region is 175 and for the remainder of Canada 200. Other factors: pulpwood and round mining timber 85, fuelwood and wood for charcoal 80, poles and piling 15, hewn railway ties 5, fence posts 1.2 and fence rails 1.

² Chiefly Christmas trees but also includes balsam gum, cascara bark, etc.

10.—Equivalent Volume of Solid Wood Cut and Value of Products of Woods Operations, by Province, 1958-60

Province or Territory	Equivalent Volume of Solid Wood			Value of Products ¹		
	1958	1959	1960	1958	1959	1960
	M cu. ft.	M cu. ft.	M cu. ft.	\$	\$	\$
Newfoundland.....	83,959	96,695	126,702	22,149,929	22,771,333	32,194,500
Prince Edward Island..	10,365	10,594	10,834	1,919,497	1,430,067	1,545,996
Nova Scotia.....	83,283	89,612	98,095	18,345,674	18,441,249	20,023,887
New Brunswick.....	172,215	172,602	187,297	40,961,013	33,059,821	40,715,805
Quebec.....	816,797	877,158	879,914	192,950,612	215,287,177	212,620,255
Ontario.....	483,544	531,528	541,329	110,138,247	131,939,580	154,473,703
Manitoba.....	50,377	51,766	45,255	7,496,163	7,947,414	7,381,877
Saskatchewan.....	41,561	44,621	49,860	5,598,816	6,362,446	7,419,148
Alberta.....	107,612	135,003	148,085	16,061,077	20,274,322	24,048,741
British Columbia.....	998,827	1,173,965	1,312,349	221,885,140	257,650,252	304,877,339
Yukon and N.W.T.....	8,930	2,843	5,697	1,104,340	552,339	1,086,737
Canada.....	2,854,670	3,186,387	3,405,417	638,610,508	715,716,000	806,488,488

¹ Includes value of forest products other than wood.

11.—Principal Statistics of Woods Operations, 1954-60

Year	Employees (man-years) ¹	Salaries and Wages	Cost of Materials	Net Value of Production	Gross Value of Production
	No.	\$	\$	\$	\$
1954.....	127,000	428,000,000	84,395,514	643,974,393	728,369,907
1955.....	149,000	506,000,000	100,458,945	729,113,769	829,572,714
1956.....	132,015	472,035,290	97,808,409	841,334,193	939,142,602
1957.....	119,944	430,804,865	89,941,837	733,112,661	823,054,498
1958.....	67,327	338,283,658	68,594,657	570,015,851	638,610,508
1959.....	82,551	347,405,901	57,003,561	658,712,439	715,716,000
1960 ^p	86,539	374,730,734	72,922,733	733,565,755	806,488,488

¹ Prior to 1958, employment statistics included those individuals employed in the transportation of products from the woods to the manufacturing plant or user. In order to report only employment in woods operations, and to avoid duplication of data collected elsewhere, 1958 and subsequent employment statistics have been compiled to conform with this principle.

Subsection 2.—The Lumber Industry

The manufacture of sawn lumber is the second most important industry in Canada depending on the forest for its raw materials. The total number of sawmills, tie, shingle, lath, stave, heading and hoop mills, reports of which were compiled for 1960, was 5,312 as compared with 5,684 in 1959. Mills sawing less than 15,000 ft.b.m. are excluded but account for under one-half of 1 p.c. of the total lumber production. Employees numbered 46,607 and wages and salaries amounted to \$153,084,558. Logs, bolts and other materials and supplies of the industry were valued at \$329,575,802, the gross value of production was \$591,607,758 and net value \$252,150,944.

**12.—Quantity and Value of Lumber Production and Value of All Sawmill Products,
by Province, 1959 and 1960**

Province or Territory	Lumber Production				Value of All Sawmill Products	
	Quantity		Value			
	1959	1960	1959	1960	1959	1960
	M ft. b.m.	M ft. b.m.	\$	\$	\$	\$
Newfoundland.....	37,862	28,620	2,244,181	1,807,124	2,414,542	1,964,856
Prince Edward Island..	7,945	8,600	464,583	517,585	525,124	571,103
Nova Scotia.....	220,542	232,054	13,456,113	14,005,356	15,719,935	15,984,836
New Brunswick.....	308,287	277,794	20,083,519	18,372,347	22,732,964	22,436,886
Quebec.....	1,038,362	1,115,768	71,582,603	78,365,046	84,822,528	87,984,948
Ontario.....	620,960	628,744	49,247,579	49,105,266	59,989,722	55,851,879
Manitoba.....	36,971	34,587	1,809,208	1,753,067	1,966,362	1,822,140
Saskatchewan.....	54,032	67,396	2,813,518	3,588,105	3,030,883	3,821,719
Alberta.....	314,258	307,676	15,590,714	15,257,446	17,325,351	16,546,004
British Columbia.....	4,948,585	5,305,118	312,987,838	329,094,665	363,026,000	384,227,057
Yukon and N.W.T.....	8,615	5,869	259,970	396,330	259,970	396,330
Canada.....	7,591,419	8,012,226	490,539,826	512,262,337	571,813,381	591,607,758

13.—Quantity and Value of Lumber Cut, by Kind, 1958-60

Kind of Wood	Quantity			Value		
	1958	1959	1960	1958	1959	1960
	M ft. b.m.	M ft. b.m.	M ft. b.m.	\$	\$	\$
Spruce.....	2,167,763	2,499,900	2,521,460	123,988,463	144,020,425	143,702,371
Douglas fir.....	2,110,225	2,045,081	2,091,033	131,629,032	130,096,158	133,511,991
Hemlock.....	970,194	959,363	1,236,633	57,672,413	60,244,478	75,355,875
White pine.....	309,727	333,779	325,884	27,661,653	29,869,673	28,423,072
Cedar.....	549,566	526,856	641,469	45,980,093	43,350,522	49,582,705
Yellow pine.....	148,399	145,622	158,156	13,834,874	13,723,434	15,530,640
Jack pine.....	235,558	290,672	267,753	14,305,745	17,069,716	15,650,845
Maple.....	108,032	108,893	136,735	9,351,296	10,001,891	12,504,239
Balsam fir.....	208,106	260,253	215,703	12,783,474	15,283,464	13,104,556
Red pine.....	36,778	36,331	42,199	3,210,332	3,054,203	3,486,821
Other.....	334,732	304,719	375,201	19,483,375	23,825,862	21,409,222
Totals.....	7,179,080	7,591,419	8,012,226	459,900,750	490,539,826	512,262,337

14.—Quantity and Value of Lumber, Shingles and Lath Produced, 1951-60

NOTE.—Figures from 1908 are given in the corresponding table of previous Year Books beginning with the 1931 edition.

Year	Lumber		Shingles		Lath	
	Quantity	Value	Quantity	Value	Quantity	Value
	M ft. b.m.	\$	squares	\$	'000	\$
1951.....	6,948,697	507,650,241	2,982,362	27,977,418	104,872	1,042,196
1952.....	6,807,594	483,195,323	2,424,818	19,269,747	111,595	1,237,227
1953.....	7,305,958	494,385,993	2,610,068	19,897,877	155,595	1,686,581
1954.....	7,243,855	482,912,005	2,710,654	24,039,162	140,655	1,512,400
1955.....	7,920,033	541,563,241	2,896,080	29,795,687	149,663	1,613,497
1956.....	7,739,603	539,261,627	2,798,599	28,775,812	142,992	1,511,153
1957.....	7,099,758	466,227,702	2,258,452	19,921,267	110,064	1,184,097
1958.....	7,179,080	459,900,750	2,323,583	20,527,156	106,734	1,149,608
1959.....	7,591,419	490,539,826	2,209,714	20,519,315	135,720	1,517,987
1960.....	8,012,226	512,262,337	2,344,896	20,237,274	137,001	1,481,864

Lumber Exports.—Exports of planks, boards and square timber are given in Chapter XX on Foreign Trade.

Subsection 3.—The Pulp and Paper Industry

The manufacture of pulp and paper has been the leading industry in Canada for many years and the postwar development of the industry has more than kept pace with the vast industrial growth of the nation. Pulp and paper stands first among all industries in net value of shipments, in exports, in total wages paid and in capital invested. It is the largest consumer of electric energy and the largest industrial buyer of goods and services, including transportation, in the land. The industry has a newsprint output more than three times that of any other country and provides about 45 p.c. of the world's newsprint needs.

There are three classes of mills in the industry. In 1960, 26 were making pulp only, 26 were making paper only and 76 were combined pulp and paper mills.

The industry includes several forms of industrial activity: operations in the woods with pulpwood as a product, the manufacture of pulp and paper of all kinds, and the manufacture of paperboards. Some of the important pulp companies operate sawmills to utilize the larger timber on their limits to the best advantage, and some lumber manufacturers divert a portion of their spruce and balsam logs to pulp mills. Only a small percentage of the pulpwood cut in Canada is exported in raw or unmanufactured form.

15. —Production, Consumption, Exports and Imports of Pulpwood, 1951-60

Year	Production of Pulpwood in Canada ¹			Canadian Pulpwood Used in Canadian Mills ¹	Canadian Pulpwood Exported Unmanufactured	Imported Pulpwood Used in Canada
	Quantity	Value	Average Value per Cord			
	cords	\$	\$	cords	cords	cords
1951.....	18,151,853	416,196,281	22.93	12,587,792	2,893,615	46,634
1952.....	14,755,089	346,802,085	23.50	11,960,014	2,529,353	31,060
1953.....	13,545,181	309,011,150	22.81	12,060,853	1,783,657	48,805
1954.....	14,739,571	323,800,478	21.97	12,875,978	1,826,193	105,030
1955.....	16,087,951	369,476,288	22.97	13,494,496	1,882,784	134,917
1956.....	17,469,334	419,470,968	24.01	13,843,711	1,953,470	188,144
1957.....	14,967,604	340,235,102	22.73	13,187,474	1,800,411	179,614
1958.....	12,759,136	275,153,906	21.57	12,477,330	1,286,314	146,835
1959.....	14,357,139	320,244,307	22.31	13,387,285	1,107,486	147,766
1960.....	13,997,080	311,579,147	22.26	13,888,347	1,151,899	227,649

¹ Given in terms of rough or unpeeled wood.

Pulp Production.—The manufacture of pulp, the second stage in this industry, is carried on by mills producing pulp only and also by paper manufacturers operating pulp mills in conjunction with paper mills to provide their own raw material. Such mills usually manufacture a surplus of pulp for sale in Canada or for export. Spruce, supplemented by balsam fir in the east and by hemlock in the west, is the most suitable species for the production of all but the best types of paper.

The preliminary preparation of pulpwood is most commonly carried on at the pulp mill although there are a number of rossing mills operating on an independent basis, chiefly for the purpose of saving freight on material cut at a distance from the mill or on material intended for export. Pulpwood is commonly measured by the cord (4' by 4' by 8' of piled material). One cord of rough pulpwood contains approximately 85 cu. feet of solid wood, and one cord of peeled pulpwood 95 cu. feet.

The manufacture of 11,461,489 tons of pulp produced in 1960 entailed the use of 14,115,996 cords of rough pulpwood valued at \$361,858,672 and the equivalent of 1,786,257 rough cords of other wood (i.e., sawmill chips, slabs and edgings, sawdust, butts, cores, etc.) valued at \$31,091,512. The total value of materials used in the manufacture of pulp was \$479,677,329.

16.—Pulp Production, Mechanical and Chemical, 1951-60

NOTE.—Figures for earlier years will be found in the corresponding table of previous Year Books.

Year	Mechanical Pulp		Chemical Fibre		Total Production ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	5,172,465	213,953,064	3,814,086	503,997,803	9,314,849	727,880,005
1952.....	5,175,319	217,352,245	3,518,127	423,789,033	8,968,009	650,021,180
1953.....	5,122,597	209,899,639	3,663,289	406,114,975	9,077,063	624,865,504
1954.....	5,337,610	214,102,066	4,057,046	433,359,934	9,673,016	655,916,738
1955.....	5,466,925	218,557,773	4,359,226	465,149,732	10,150,547	693,402,831
1956.....	5,723,002	231,236,271	4,645,493	463,880,858	10,733,744	706,232,534
1957.....	5,574,233	227,668,164	4,526,667	468,067,374	10,425,295	706,194,649
1958.....	5,375,499	222,295,717	4,445,310	471,590,838	10,137,454	703,365,594
1959.....	5,655,701	229,655,697	4,837,328	504,613,400	10,832,200	744,940,432
1960.....	5,880,529	237,344,741	5,203,799	522,539,122	11,461,489	772,626,099

¹ Includes screenings and unspecified pulps.**17.—Pulp Production, by the Chief Producing Provinces, 1951-60**

Year	Quebec		Ontario		Canada ¹	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	4,282,568	298,100,313	2,484,551	219,571,231	9,314,849	727,880,005
1952.....	4,192,047	280,314,341	2,308,722	182,773,000	8,968,009	650,021,180
1953.....	4,163,068	265,937,385	2,323,509	177,713,471	9,077,063	624,865,504
1954.....	4,315,465	268,759,418	2,420,903	183,381,040	9,673,016	655,916,738
1955.....	4,491,139	280,171,743	2,602,298	196,235,632	10,150,547	693,402,831
1956.....	4,809,011	296,884,619	2,735,241	178,012,929	10,733,744	706,232,534
1957.....	4,605,853	286,727,250	2,746,177	207,305,585	10,425,295	706,194,649
1958.....	4,223,227	256,238,044	2,736,456	217,476,915	10,137,454	703,365,594
1959.....	4,374,156	263,463,635	2,758,176	213,333,340	10,832,200	744,940,432
1960.....	4,469,015	267,664,950	2,966,587	223,108,348	11,461,489	772,626,099

¹ Includes production in other provinces; Prince Edward Island is now the only province in which there is no production.

Pulp Exports.—The main market for Canadian pulp is the United States. For many years this market alone has absorbed between 75 and 90 p.c. of such exports.

18.—Exports of Pulp to Britain, United States and All Countries, 1951-60

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	217,250	37,770,627	1,831,410	276,760,578	2,243,307	365,132,884
1952.....	210,685	35,208,295	1,588,978	225,082,376	1,940,579	291,863,498
1953.....	214,951	28,099,255	1,599,491	202,247,663	1,950,152	248,674,880
1954.....	270,946	34,486,399	1,669,782	206,435,403	2,180,416	271,418,005
1955.....	280,575	34,814,098	1,868,804	233,796,779	2,366,133	297,304,069
1956.....	244,164	29,762,920	1,919,634	245,080,531	2,374,013	304,536,497
1957.....	225,482	28,662,202	1,847,364	235,258,142	2,282,656	292,406,102
1958.....	216,147	24,666,398	1,832,521	239,874,495	2,219,314	285,448,649
1959.....	217,386	24,726,915	1,966,480	254,049,124	2,450,027	311,252,798
1960.....	282,747	32,203,019	1,999,755	256,170,127	2,601,457	325,121,572

World Pulp Statistics.—Figures of production, exports and imports of pulp for certain countries of the world are shown for 1959 and 1960 in Table 19. It is estimated that these countries produce over three-quarters of the world supply of pulp.

19.—Production, Exports and Imports of Pulp, by Leading Countries, 1959 and 1960

(Source: Canadian Pulp and Paper Association)

Country	1959			1960		
	Production	Exports	Imports	Production	Exports	Imports
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada ¹	10,837	2,450	65	11,354	2,601	64
United States.....	24,257	653	2,432	25,147	1,142	2,381
Finland.....	3,459	1,608	1	4,070	1,757	4
Norway.....	1,524	779	40	1,681	888	50
Sweden.....	4,838	2,953	3	5,482	3,230	10

¹ Production figures differ slightly from DBS figures given in Table 16, because of a different basis of calculation.

Paper Production.—During 1960 there were 102 establishments producing paper and paperboard in Canada. In addition to newsprint, Canadian mills have a highly developed production of fine paper, wrapping paper, tissues, paperboard and other cellulose products.

20.—Paper Production, by Type, 1951-60

NOTE.—Figures for earlier years will be found in the corresponding table of previous Year Books.

Year	Newsprint Paper		Book and Writing Paper		Wrapping Paper	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	5,561,115	564,361,193	253,081	63,790,259	257,332	49,664,005
1952.....	5,707,030	600,515,960	224,683	57,463,621	222,529	45,356,720
1953.....	5,755,471	633,408,019	246,513	61,451,545	238,111	49,028,911
1954.....	6,000,895	657,487,344	269,353	68,613,807	250,408	51,341,374
1955.....	6,196,319	688,338,369	301,352	74,904,349	263,915	53,998,859
1956.....	6,445,110	735,644,049	341,580	86,524,107	288,146	61,098,013
1957.....	6,361,651	729,009,081	335,037	86,990,136	277,208	60,402,276
1958.....	6,030,930	699,906,388	344,622	91,079,353	292,727	64,650,624
1959.....	6,351,112	730,455,460	381,779	101,927,846	330,189	71,318,172
1960.....	6,688,834	783,364,089	403,668	106,573,848	321,166	70,778,384
	Paperboard		Tissue and Miscellaneous Paper		Totals	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	960,493	113,469,950	193,250	32,744,242	7,225,271	824,029,649
1952.....	874,582	106,066,622	172,976	28,702,185	7,201,800	838,105,108
1953.....	948,955	114,978,277	187,476	28,991,721	7,376,526	887,858,473
1954.....	940,196	117,172,691	188,755	30,975,427	7,649,607	925,590,643
1955.....	1,027,441	130,365,751	211,186	33,831,919	8,000,213	981,439,247
1956.....	1,173,087	147,967,340	218,862	39,258,846	8,466,785	1,070,492,355
1957.....	1,114,726	143,079,419	211,267	36,890,420	8,299,889	1,056,371,332
1958.....	1,188,650	152,810,753	224,364	36,193,082	8,081,293	1,044,640,200
1959.....	1,255,692	163,151,023	231,087	39,218,605	8,549,859	1,106,071,106
1960.....	1,277,554	165,800,650	231,564	40,523,441	8,922,786	1,167,040,412

Quebec produced almost 44 p.c. of the total paper made in 1960, Ontario over 28 p.c., British Columbia about 13 p.c. and Newfoundland, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta the remaining 15 p.c.

21.—Paper Production, by Province, 1959 and 1960

Province	1959		1960	
	Quantity	Value	Quantity	Value
	tons	\$	tons	\$
Quebec.....	3,818,861	485,337,054	3,905,972	501,596,562
Ontario.....	2,430,913	342,043,159	2,550,109	364,448,004
British Columbia.....	1,048,432	126,164,615	1,150,119	140,000,169
Newfoundland, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta.....	1,251,653	152,526,278	1,316,586	160,995,677
Totals.....	8,549,859	1,106,071,106	8,922,786	1,167,040,412

Newsprint Exports.—Total exports of newsprint from Canada in the years 1951-60 are given in Table 22.

22.—Exports of Newsprint to Britain, United States and All Countries, 1951-60

Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	tons	\$	tons	\$
1951.....	72,205	7,488,187	4,774,947	496,852,197	5,112,061	536,372,498
1952.....	131,005	14,575,722	4,850,962	534,372,859	5,327,430	591,790,209
1953.....	158,108	18,237,016	4,917,216	564,464,267	5,375,251	619,033,394
1954.....	250,185	28,639,166	4,866,649	558,633,675	5,521,530	635,669,692
1955.....	286,343	33,013,480	5,027,767	578,322,418	5,763,167	665,876,987
1956.....	347,905	41,531,514	5,218,911	615,941,551	5,967,194	708,384,822
1957.....	371,870	44,009,073	5,058,229	610,290,208	5,900,625	715,489,761
1958.....	389,000	46,476,034	4,880,985	590,167,442	5,682,832	690,209,468
1959.....	393,942	51,585,851	5,091,770	614,706,362	5,910,173	722,271,166
1960.....	460,537	60,162,971	5,229,909	631,230,363	6,190,286	757,930,406

World Newsprint Statistics.—Since 1913 Canada had led the world in the export of newsprint. Figures for the leading producing countries for the two latest years available are given in Table 23; 1939 figures are included for comparative purposes. The six countries listed accounted for 79 p.c. of the estimated world production in 1960, Canada contributing about 47 p.c.

23.—Estimated World Newsprint Production and Exports, by Leading Countries, 1939, 1959 and 1960

(SOURCE: Newsprint Association of Canada)

Country	Production			Exports		
	1939	1959	1960	1939	1959	1960
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada¹.....	3,175	6,394	6,738	2,935	5,910	6,189
United States.....	939	1,920	2,009	13	120	134
Britain.....	843	750	830	42	91	52
Finland.....	550	698	861	433	635	761
Sweden.....	306	558	641	199	344	434
Norway.....	222	237	249	188	198	195

¹ Figures differ slightly from DBS figures given in Tables 20 and 22, because of different bases of calculation.

Statistics of the Combined Pulp and Paper Industries.*—The manufacture of pulp, the manufacture of paper and the manufacture of products made of paper may, under certain conditions, be treated as three industries for they are frequently carried on in separate plants by entirely independent companies. The manufacture of basic stock and the converting of this paper into stationery and other highly processed paper products are often combined in one plant. This conversion of paper within the pulp and paper industry represents only a small part of Canada's production of converted paper and boards, the bulk of which is still made in special converting mills classified in other industrial groups.

The presence of these different combinations in one mill makes it difficult to separate many of the statistics relating to the manufacture of pulp, basic paper and converted paper products. All converting operations carried on in paper mills in this industry are attributed to the particular industrial group of converting plants to which they properly belong. Including manufacturing operations as far as the basic paper-making stage, there were altogether 128 mills in operation in 1960. Employees numbered 65,642 and their salaries and wages amounted to \$344,409,846, as against 65,028 employees earning \$322,311,304 in 1959. If the pulp made for their own use in combined pulp and paper mills is disregarded, the total value of materials and supplies used in the industry as a whole amounted to \$656,877,464 in 1960 compared with \$628,269,346 in 1959; the selling value of factory shipments to \$1,578,727,108 in 1960 and \$1,499,585,644 in 1959; and value added by manufacture to \$811,546,844 in 1960 and \$761,035,456 in 1959.

In world trade, pulp and paper are generally Canada's main commodities—newsprint alone, over a considerable period, has brought Canada more export dollars than wheat, nickel or any other single commodity.† The United States market absorbs annually over 80 p.c. of all pulpwood exports and the same percentage of the pulp and the paper shipments of Canada.

Subsection 4.—The Veneer and Plywood Industries

The production of hardwood veneer and plywood in Canada is confined largely to the eastern provinces. Changes in manufacturing methods applied to hardwood plywood resulted in its adaptation to many uses, particularly to interior wall finishes for homes and other buildings.

Softwood veneer and plywood are produced almost entirely in British Columbia. Douglas fir is most commonly utilized because of the availability of large diameter logs of this species from which large sheets of clear veneer can be obtained. The use of synthetic resin adhesives is responsible for this product, which has become almost indispensable to the construction industry—for wall panels, concrete forms, roofing, sheeting and house sub-floors; for construction of silos, cribs and caissons; for box-car linings, bus bodies, trailers, and watercraft; for box panels and crate linings, case goods and core-stock for furniture; and for plywood-faced doors and many other items.

The heating of glued veneers in moulds by high-frequency electric fields (dielectric heating) permits the manufacture of shaped plywood which is now widely used in the manufacture of furniture.

* See Chapter XIV for further particulars regarding the pulp and paper and paper-converting industries.

† For reasons given in Section 1, Part II of the Foreign Trade Chapter, gold is excluded from Canadian trade statistics.

Veneers of Canadian manufacture are not confined to species native to Canada. A number of imported woods of special decorative value are veneered successfully and provide the furniture industry with a wide choice of materials. Exports of veneer and plywood produced in Canada increased in value from \$969,256 in 1938 to a high of \$32,717,126 in 1960.

24.—Veneer and Plywood Produced for Sale, by Type, 1958-60

Type	1958		1959		1960	
	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch	Not over 1/20 Inch	Over 1/20 Inch
Veneer.....M sq. ft.	591,444	522,463	745,547	514,311	641,331	450,780
\$	15,041,689	5,411,859	21,471,254	5,323,477	19,117,025	5,031,856
Domestic softwood.....M sq. ft.	7,234	457,051	6,779	444,526	8,254	381,024
\$	93,830	3,546,471	89,380	3,517,631	110,526	3,088,996
Domestic hardwood.....M sq. ft.	556,096	63,670	691,297	68,111	614,835	64,587
\$	13,939,251	1,794,998	19,788,928	1,740,960	18,336,070	1,705,876
Imported wood.....M sq. ft.	28,114	1,742	47,471	1,674	18,242	5,169
\$	1,008,608	70,390	1,592,946	64,886	670,429	236,984
Plywood (1/4 inch Basis)...M sq. ft.	1,532,177		1,532,175		1,638,914	
\$	95,763,254		101,346,523		98,485,813	
Domestic softwood.....M sq. ft.	1,276,766		1,231,339		1,381,575	
\$	70,389,579		71,287,508		71,828,995	
Domestic hardwood.....M sq. ft.	243,636		276,298		237,092	
\$	22,517,968		25,075,147		22,117,225	
Imported wood.....M sq. ft.	11,775		24,538		20,247	
\$	2,855,707		4,983,868		4,539,593	

Subsection 5.—Other Wood Industries

Based on the revised Standard Industrial Classification, which was introduced in 1960, there are nine separate wood industries other than the sawmills and the veneer and plywood mills. Most of these industries obtain from the sawmills the wood which they transform into planed or matched lumber, doors, windows, laminated structures, prefabricated buildings, boxes, barrels, caskets, etc. Veneer and plywood are also important raw materials used.

The wood industries do not include every industry into which wood enters as a raw material. Wood is an important raw material in the manufacture of furniture, agricultural implements, musical instruments, etc., industries which, as proven by experience, are more correctly classified under other groups.

As shown in Table 25, factory shipments of establishments classed in the wood industries—except sawmills and veneer and plywood mills—were valued at \$340,940,000 in 1960, an amount 7.4 p.c. below that of the previous year. The most significant declines were shown for the sash, door and planing mills industry and the hardwood flooring industry, both largely dependent upon the residential construction activity which experienced a lull in 1960; during the year, construction was started on 108,858 dwellings, 23 p.c. fewer than in 1959. Average yearly employment in the Other Wood Industries group was reported at 29,791 with a payroll at \$114,214,000 compared with 30,066 and \$111,403,929, respectively, in the preceding year.

25.—Value of Shipments of Other Wood Industries, 1959 and 1960

Industry	1959 ¹	1960	Percentage Change 1959-60
	\$	\$	
Sash, door and planing mills.....	255,451,145	229,834,534	-10.0
Wooden box factories.....	24,610,738	25,171,658	+ 2.3
Hardwood flooring.....	16,212,518	13,489,720	-16.8
Coffin and casket industry.....	11,210,993	11,749,903	+ 4.8
Wood handles and turning.....	9,528,274	10,252,700	+ 7.6
Cooperage.....	5,647,303	5,258,997	- 6.9
Woodenware.....	4,205,947	4,034,269	- 4.1
Other ²	41,165,505	41,147,856	- 0.1
Totals.....	368,032,423	340,939,637	- 7.4

¹ Calculated on the same basis as for 1960.
industries.

² Includes wood preservation industry and miscellaneous wood

Subsection 6.—The Paper-Using Industries

Starting with 1960, the paper-using group is comprised of five industries* engaged primarily in manufacturing commodities of paper and paperboard. Establishments engaged in printing, publishing, bookbinding and the allied graphic arts also consume large quantities of these materials but are grouped separately (see Subsection 7).

Some paper-using establishments purchase paper as a raw material from the pulp and paper industry and merely subject it to some form of treatment to fit it for further manufacture in another industry; this occurs in the manufacture of coated, sensitized or corrugated paper. Other firms purchase paper and subject it to treatment to fit it for a definite final use such as in the manufacture of asphalt roofing or waxed wrapping paper. Another large group uses paper and paperboard as a raw material for conversion into paper bags, boxes, envelopes and other commodities.

The manufacture of containers and packages of various kinds has grown very rapidly since ways have been found of converting tough and cheap paper stocks into strongly made boxes which are replacing wooden crates and packing cases. Small attractive paper containers for use in the retail trade are now in common use and their manufacture constitutes an important branch of the paper-using industries. Starting with 1960, a number of establishments specializing in the production of plastic bags (cellulose, polyethylene, etc.) previously classed in other industries, are included with the paper bag manufacturers.

Composition roofing and sheathing, consisting of paper felt saturated with asphalt or tar and in some cases coated with a mineral surfacing, is being increasingly used as a substitute for metal roofing, wooden shingles and siding materials. Establishments classed as roofing manufacturers also produce a large proportion of the floor tiles manufactured in this country.

As a whole, the paper-using industries have grown constantly in recent years. In 1949, the 401 establishments in this group employed 24,421 persons, distributed \$50,644,753 in salaries and wages and shipped products valued at \$256,911,933; in 1960 these industries comprised 453 establishments, provided employment to 29,791 persons with earnings totalling \$114,204,419 and reported shipments of commodities valued at a record \$549,380,089.

* Asphalt roofing manufacturers, folding box and set-up box manufacturers, corrugated box manufacturers, paper bag manufacturers, and miscellaneous paper converters.

Subsection 7.—Printing, Publishing and Allied Industries

The printing, publishing and allied industries group is made up of six closely related industries: printing and bookbinding, including commercial printers and bookbinders; lithographing, comprised of commercial printing plants using principally the offset printing process; engraving, stereotyping and electrotyping, including photo-engraving; trade composition or type setting for printers; printing and publishing, comprised of publishers who operate printing plants; and "publishers only", including establishments primarily engaged in publishing and which do no printing.

The total revenue of all establishments in this group of industries reached \$865,930,729 in 1960, an amount 7.5 p.c. higher than the preceeding year's total of \$805,530,111. It is noteworthy, however, that "publishers only" of books were surveyed for the first time in 1960; their revenue from book publishing amounted to \$15,540,436 for the year. On the other hand, a large number of publishers of "house organs" were eliminated from the 1960 survey, but the revenue accruing from this activity was relatively small. Employment by establishments classed in the printing trades and allied industries reached 73,694 with a payroll of \$322,788,021, compared with 72,263 in 1959 with a payroll of \$303,888,206.

The revenue to commercial printing establishments (including lithographers) rose to \$360,352,514 in 1960 from \$340,739,221 in the preceding year; plants specializing in trade composition, engraving, stereotyping, etc., had a total revenue of \$51,807,894, which was 3.1 p.c. higher than the \$50,266,909 recorded in 1959; revenue to the printing and publishing industry increased to \$359,876,447 from \$347,874,348 and for "publishers only" to \$93,893,874 from \$66,649,623. Revenues from advertising and from subscriptions or sales of Canadian newspapers and periodicals of all kinds rose to \$391,831,545 in 1960 from \$377,156,873 in 1959; advertising revenue was \$294,823,356 compared with \$282,953,136 and sales \$97,008,189 compared with \$94,203,737.

CHAPTER XI.—MINES AND MINERALS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

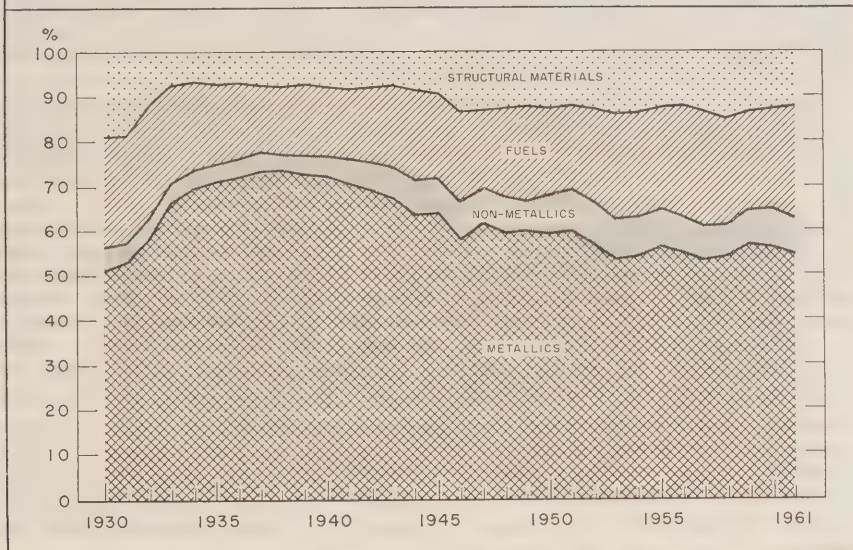
Section 1. —Canada's Mineral Industry 1960-61*

The Canadian mineral industry in 1960 and on into 1961 experienced steady and diversified growth in developing known deposits for production. However, recent growth in mineral output has been comparatively small. The 1960 value of mineral production at \$2,192,509,981 was only slightly higher than the previous year's record high of \$2,409,020,511 and another slight increase of 3.2 p.c. to \$2,573,782,838 was recorded in 1961. Production of mineral fuels registered a significant advance from \$565,851,829 in 1960 to \$643,425,160 in 1961 and industrial mineral production advanced to a new high of \$533,343,589 from \$520,100,091. On the other hand, metallic minerals recorded the first decline in several years, production decreasing slightly from \$1,406,558,061 to \$1,397,014,089. Major increases for petroleum, nickel and natural gas were nearly offset by greatly reduced shipments of uranium (U_3O_8) and smaller reductions in shipments of several other minerals.

From 1950 to 1960 the value of Canada's mineral production increased nearly two and one-half times from \$1,045,000,000. Each of the three sectors of the industry registered marked growth—metals increased in value from \$617,000,000 to \$1,407,000,000, industrial minerals from \$227,000,000 to \$520,000,000 and mineral fuels from \$201,000,000 to \$566,000,000. During this period the per capita value of production increased from \$76.21 to \$139.48. Compared with the 1950's, there has been relatively little progress in terms of value of mineral production over the past three years but much has been accomplished during this plateau of output that will result in the broadening of Canada's mineral industry base and in diversification of output in the years ahead. During 1961, some mining projects that had been under development for several years reached production and others continued to be prepared for operation within the next few years. Prospecting and exploration of mineral occurrences were at an increased tempo, significant discoveries were made and property developments of major importance were undertaken.

* Prepared under the direction of Dr. Marc Boyer, Deputy Minister of Mines and Technical Surveys, Ottawa, in the following Divisions: Introduction and Subsections 1 and 3 by the Mineral Resources Division; Subsection 2 by the Mineral Processing Division, Mines Branch; and Subsection 4 by the Fuels and Mining Practice Division, Mines Branch.

PROPORTION OF TOTAL VALUE OF MINERAL PRODUCTION CONTRIBUTED BY
METALLICS, NON-METALLICS, FUELS AND STRUCTURAL MATERIALS,
1930-61



In 1961, for the third consecutive year, nickel production set a new high and again topped the list of metals with a substantial rise in value to \$357,500,000 from \$295,600,000 in 1960. Nickel was followed, in order, by copper, uranium, iron ore, gold, zinc, lead and silver. These eight metals accounted for almost 96 p.c. of metallic minerals output which, in turn, accounted for nearly 52 p.c. of the total value of mineral production. The new northern Manitoba Thompson project of The International Nickel Company of Canada, Limited was officially opened on Mar. 25 and reached its productive capacity of 75,000,000 lb. of electrolytic nickel a year by mid-1961. Canada's total nickel production capacity at the end of the year was nearly 500,000,000 lb. with 382,000,000 lb. of it being located in the Sudbury area of Ontario. Copper production recorded another all-time high of 445,000 tons, slightly above the previous year's 439,000 tons. Canada retained its position as the fourth largest copper supplier in the Western World following the United States, Northern Rhodesia and Chile. Five copper mines began production in 1961 and 13 others were being developed for production. Uranium production and deliveries continued to decline in 1961 as the industry made further adjustments under a 'stretch-out' plan for deliveries to the United States that was announced by the Federal Government late in 1959. There were eight mines operating at the end of 1961 compared with 10 a year earlier and 19 at the end of 1959.

Iron ore production in 1961 from 13 mines was 18,200,000 long tons valued at \$180,500,000, placing Canada in sixth position among world producers. From the resource development point of view, the iron ore industry continued to be one of the strongest individual sectors of the mineral economy. One 8,000,000-ton-a-year project at Gagnon, Que., began production of high-grade concentrates following three years of development and construction; two large mining projects in the Wabush Lake area of Labrador continued to be developed, one for production in 1963 and the other in 1964-65. The principal export markets continued to be the United States, Britain, Western Europe and Japan with about 1,300,000 tons being shipped to the latter market from British Columbia in 1961.

Canada remained the second largest gold producer in the Free World although output at 4,400,000 oz.t. was more than 4 p.c. below that of 1960. The industry's outlook improved in mid-1961 because of the reduction in value of the Canadian dollar in relation to the United States dollar. Lead-zinc producers continued to be confronted with over-supply in world markets and with the United States import quotas on unmanufactured lead and zinc that were imposed in September 1958. Despite marketing problems, production of both lead and zinc was sustained. Several large undertakings were announced so that future growth of lead-zinc industries appears assured.

Reflecting Canada's continuing industrial growth and construction activity, the value of industrial minerals output, embracing non-metallic minerals and construction materials, reached a record \$533,400,000, 2.5 p.c. above the previous record of \$520,100,000 set in 1960. New production records were established for asbestos, elemental sulphur, cement, sodium sulphate and titania (TiO_2). The industrial minerals sector of Canada's mineral industry contributes over 20 p.c. of the total value of mineral output. This proportion may increase later in the 1960's as several major developments now under way will greatly increase output of certain commodities, some of which have not yet been produced in significant amounts in Canada. These developments include the production of asbestos from deposits in the Baie Verte area of Newfoundland in 1963; the large-scale recovery of elemental sulphur as a by-product of gas processing plants in Western Canada; renewed production of potash in 1962 from the vast high-grade deposits in Saskatchewan; and greater production of certain other non-metallic minerals, notably titania and salt.

In the domestic manufacturing and construction industries of any country, industrial minerals are generally important as primary raw materials required for further processing, and as the industrial economy grows so grows the need of industrial minerals. Their production is not usually dependent upon exports nor affected by competition in world markets; although notable exceptions for Canada are asbestos, elemental sulphur and potash.

The value of mineral or fossil fuels production in 1961 increased to \$643,000,000 from \$566,000,000 in 1960; since 1950 this sector of the Canadian mineral industry has shown more rapid growth in value of output than have the other two sectors—the metallic minerals and industrial minerals. Crude oil production rose to 220,000,000 bbl., an 18-p.c. increase over 1960. Natural gas production was 646,000,000 Mcf., a 25-p.c. increase over 1960. Natural gas by-products, which include condensate, natural gasoline, propane, butane, etc., were valued at \$22,500,000. Coal output declined to 10,400,000 tons from 11,000,000 tons in 1960.

Petroleum continued to be the largest single contributor to Canada's mineral output. The industry gained considerable impetus early in 1961 when the Federal Government announced its 'national oil policy' by which, through voluntary means and the co-operation of producers and consumers, it was hoped that an average output of 640,000 bbl. a day of crude oil and natural gas liquids would be attained in 1961 and 800,000 bbl. a day in 1963. The 1961 objective was reached and considerable progress has been made toward the 1963 goal.

The modern era of petroleum production in Canada commenced with the discovery in 1947 of oil near Leduc, 18 miles south of Edmonton, Alta. Annual output of oil rose from less than 8,000,000 bbl. in 1947 to nearly 190,000,000 bbl. in 1960, about 70 p.c. of the production in that year coming from Alberta, 27 p.c. from Saskatchewan and the remainder from Manitoba, British Columbia, Ontario and the Northwest Territories. Natural gas production in the same period rose from 52,000,000 Mcf. to 522,972,000 Mcf., about 73 p.c. in 1960 coming from Alberta, 16 p.c. from British Columbia and 7 p.c. from Saskatchewan. Production increases in 1961 are evidence of continuing expansion in the industry. At the same time, resource development provided for reserve increases from the 1960 year-end totals of 4,217,000,000 bbl. of crude oil and natural gas liquids and 30,700,000,000 Mcf. of natural gas.

A network of oil pipelines carries crude oil from Western Canada to consuming areas from Vancouver to Toronto and to export markets in the State of Washington and the Great Lakes region of the United States. Gas pipelines carry natural gas to markets stretching from Vancouver to Montreal and to connecting pipelines in the United States at Cornwall and Niagara Falls in Ontario, Emerson in Manitoba, Cardston in Alberta, and Kingsgate and Sumas in British Columbia. The Canadian petroleum refining industry is the fourth largest in the world and one of the most modern. It had, at the end of 1960, an aggregate crude oil capacity of over 950,000 bbl. a day in 44 plants. Natural gas processing plants had a capacity to process over 2,300,000 Mcf. daily from which could be recovered each day some 1,900,000 Mcf. of pipeline gas, 55,000 bbl. of propane, butane and condensate and over 2,000 tons of sulphur. Natural gas processing capacity was increased by one-fifth in 1961 to supply greatly increased export markets.

The mineral and mineral-based industries are of vital importance in Canada's trade position. The export value of minerals either as raw materials or semi-processed goods reached a record of \$680,000,000, or 32 p.c. of the value of all exports in 1960. If fully manufactured goods of mineral origin, valued at \$487,200,000 in 1960, are included, the value of mineral-based exports was 41 p.c. of all exports in that year. Approximately the same respective proportions of mineral and mineral-based exports to total exports obtained in 1961.

Notwithstanding conditions of mineral over-supply in the world, increasing activity in the development of Canadian mineral deposits is evidence that a new period of accelerated production has begun. The increased need for mineral raw materials by the industrial nations of the Free World and the mineral resource deficiency in most of those nations have stimulated both domestic and foreign investment in Canada's mineral industry. The future holds much promise for further development and diversification of the Canadian mineral economy.

Subsection 1.—Metals

Nickel.—Production of nickel in Canada during 1961 reached an all-time high of 237,948 tons, an 11-p.c. increase over the previous record of 214,506 tons in 1960. The 1961 production value at \$357,515,337 was also an all-time high. Two important events contributing to the record year were the commencement of nickel production in northern Manitoba from the Thompson project of International Nickel and a 10-p.c. increase in the price of nickel, effective July 1.

Little change occurred in world supply. Canada and New Caledonia continued to provide the bulk of the Free World's nickel requirements; Russia and Cuba supplied the bulk of the Soviet bloc requirements. Canadian nickel-producing companies operated at rated mill capacity and supplied over 75 p.c. of the Free World's nickel in 1961. The outlook for nickel markets remains encouraging as markets in the United States, Britain, Western Europe and Japan are firm and growing steadily.

The Thompson project was officially opened on Mar. 25, 1961 and was up to rated annual capacity of 75,000,000 lb. of nickel by mid-year. Shipments of electrolytic nickel to European markets commenced during the summer through the port of Churchill, Man.

Most Canadian nickel production, as usual, came from the Sudbury area of Ontario. International Nickel operated its five mines—Frood-Stobie, Creighton, Garson, Levack and Murray—throughout 1961. Production from the Frood open pit was curtailed but the Clarabelle open pit was prepared for mining. Major additions to treatment facilities at Copper Cliff included the construction of a fluid-roast plant and the enlargement of the iron-recovery plant from 300,000 to 900,000 tons of pellets a year, both scheduled for completion in 1963.

Falconbridge Nickel Mines, Limited at Sudbury operated the Falconbridge, East, Hardy and Fecunis mines throughout 1961. The Longvack and McKim mines were closed and the Boundary and Onaping mines commenced production. Development

continued at the large Strathcona deposit in preparation for mining. Work continued at the Falconbridge mill on refinement of operations for the smelting of bulk flotation concentrates of copper-nickel sulphides. At Falconbridge's refinery at Kristiansand in Norway, a pilot plant operated on a modified refinery process which, if successful, will necessitate major refinery adjustments.

Sherritt Gordon Mines, Limited operated at normal levels. Development work at the Lynn Lake, Man., deposit on the 2,000-foot level continued from the Farley shaft. The company's refinery at Fort Saskatchewan in Alberta treated Lynn Lake concentrates and purchased bulk nickel-copper concentrates and nickel for refining on a toll basis. Sherritt Gordon purchased 3,431 tons of 19-p.c. nickel and 13-p.c. cobalt as calcines from the United States General Services Administration stockpile at Fredericktown, Miss., and also purchased an additional 87 tons of nickel-copper-cobalt matte. Powder-rolling facilities for the production of coinage blanks were expanded.

Giant Nickel Mines Limited in British Columbia signed a contract on Mar. 1 with the Japanese Sumitomo Metal Mining Company, Limited covering Giant's entire nickel-copper concentrate production for a further three-year period. As a result of an accelerated exploration program, indicated nickel-copper ore reserves were increased to about 1,000,000 tons. Daily mill capacity was increased from 900 tons to 1,200 tons. North Rankin Nickel Mines Limited operated its mine on Rankin Inlet on the west coast of Hudson Bay throughout the year and shipped nickel-copper concentrates to Sherritt Gordon's Fort Saskatchewan refinery.

Preparation for nickel production continued at Marlbridge Mines Limited in La Motte Township of Quebec. Initial production, at a minimum rate of 300 tons of ore daily, is scheduled for the spring of 1962. Marlbridge is owned by Falconbridge and Marchant Mining Company Limited and concentrates will be shipped to Falconbridge for smelting. Nickel Mining and Smelting Corporation announced that it is bringing its Gordon Lake property in northwestern Ontario into production. Shaft-deepening is in progress and regular production is planned for September 1962 at a daily mill rate of 500 tons. Nickel-copper concentrates will be trucked to Lac du Bonnet, Man., and shipped by rail to Sudbury for smelting by International Nickel.

Canadian reserves of nickel ore increased despite the mining and treatment of record tonnages during 1961. Reserves are sufficient for many years to come.

Copper.—Canada's copper production in 1961 reached a record amount of 444,635 tons valued at \$258,582,247; this was 5,373 tons above the 1960 output, an increase of 1.2 p.c. Although the percentage increase in production was lower than in previous years, exploration and development activity was greater than in any year since 1957—five new mines were brought into production, 13 mines were under development, and new discoveries were reported in many parts of Canada from Fort MacKenzie in New Quebec to the Nahanni River valley near the Yukon border.

Six smelters for the reduction of copper and copper-nickel ores and concentrates are operated in Canada. In the Sudbury area of Ontario, International Nickel operates smelters at Copper Cliff and Coniston, and Falconbridge Nickel Mines produces copper-nickel matte at its Falconbridge smelter. Hudson Bay Mining and Smelting Company Limited at Flin Flon, Man., smelts concentrates from its mines in Manitoba and Saskatchewan and, since September 1960, has smelted concentrates from Sherritt Gordon's Lynn Lake mine. Ores and concentrates from the copper mines in Ontario, Quebec and Newfoundland are smelted at the Noranda smelter of Noranda Mines, Limited and the Murdochville smelter of Gaspé Copper Mines, Limited, both in Quebec. Copper refineries are operated by International Nickel at Copper Cliff, Ont., and Canadian Copper Refiners Limited at Montreal East, Que. The capacity of the latter company's plant was increased in 1961 to 270,000 tons of copper a year and the combined production of the two refineries totalled 448,000 tons at the end of the year.

In Newfoundland production was started in May 1961 at the Little Bay mine of Atlantic Coast Copper Corporation Limited. Atlantic's mill has the capacity to treat 1,000 tons of ore a day. Concentrate from this plant, added to the concentrate from the Tilt Cove mine of Maritimes Mining Corporation Limited and the Buchans Unit of American Smelting and Refining Company, raised Newfoundland's 1961 copper output to 16,853 tons valued at \$9,838,752. A number of exploration parties were engaged in the investigation of copper prospects in the Burlington Peninsula-Notre Dame Bay area.

In New Brunswick, The Consolidated Mining and Smelting Company announced plans to start production in 1962 at the Wedge mine, 36 miles southwest of Bathurst; 750 tons of ore a day will be trucked eight miles south to the mill of Heath Steele Mines Limited for concentration. Heath Steele has continued a program of underground exploration and development of the B orebodies and is considering production when the mill is reactivated to treat the Wedge ore. Concentrates produced from the Wedge ore will be shipped to Japan for smelting.

Production of copper in Quebec, at 151,015 tons valued at \$88,162,394, was 6,455 tons and \$7,232,764 lower than in 1960, as a result of production cuts at three mines and a strike at the mine of Opemiska Mines (Quebec) Limited at Chapais. Production cuts of 10 p.c. were initiated in 1960 and continued throughout 1961 at the mines of Gaspé Copper Mines, Limited at Murdochville, Waite Amulet Mines, Limited north of Noranda, and the Horne mine of Noranda Mines, Limited at Noranda. Vauze Mines Limited, north of the Waite Amulet property, became Quebec's newest copper producer when production at 350 tons a day started in October 1961. Concentrates are shipped to Noranda for smelting. In the Chibougamau area, stope production was started from Campbell Chibougamau Mines Ltd.'s Henderson mine and the adjoining Portage Island mine of Copper Rand Chibougamau Mines Ltd. Solbec Copper Mines, Ltd. in Wolfe County, about 53 miles northeast of Sherbrooke, completed initial shaft-sinking and underground development programs, and scheduled the mining plant and mill for production in January 1962. Several interesting occurrences are being explored in the same area. Exploration activity was stimulated in the Noranda-Waite Amulet area by the discovery of a significant copper orebody on the property of Lake Dufault Mines Limited. In Joutel Township, north of Amos, underground exploration and development will be started on an orebody discovery by Prospectors Airways Company, Limited. Interesting copper mineralization was discovered in the Duncan Lake and Fort MacKenzie areas of New Quebec. In the Mattagami Lake area of northwestern Quebec, Orchan Mines Limited, Mattagami Lake Mines Limited and New Hosco Mines Limited all started programs of development and plant construction, with production scheduled for late 1962 or early 1963.

Ontario again led the provinces with a record copper output of 211,534 tons valued at \$122,509,392, a production 5,262 tons higher than the previous record set in 1960. This increase was attributed to higher output from the nickel-copper mines of the Sudbury district and to production from two new copper mines. Kam-Kotia Porcupine Mines, Limited near Timmins started production in April from its open pit mine; mill capacity is 900 tons a day and concentrates are shipped to Noranda for smelting. Early in 1961, Rio Algom Mines Limited started production at 750 tons a day from the Pater mine at Sprague. The ore is concentrated in a modified portion of the Pronto mill and concentrates are shipped to Rio Tinto, Spain, for smelting. Production was normal at the mines and plants of International Nickel and Falconbridge Nickel in the Sudbury district, and of Geco Mines Limited and Willroy Mines Limited at Manitouwadge. North Coldstream Mines Limited near Kashabowie and Temagami Mining Co. Limited near Temagami continued production and development at their respective mines.

Copper production in Manitoba and Saskatchewan rose to 44,880 tons valued at \$26,201,348 and exceeded the 1960 total by 302 tons. Hudson Bay Mining and Smelting operated a central mill and smelter on ores from the Schist Lake and Chisel Lake mines in Manitoba, the Coronation mine in Saskatchewan and the Flin Flon mine which straddles

the Manitoba-Saskatchewan boundary. The Stall Lake and Osborne Lake mines near Snow Lake in Manitoba are being explored and developed. Sherritt Gordon shipped copper concentrates, derived from the nickel-copper ore mined at its Lynn Lake property, to Hudson Bay's smelter at Flin Flon. Sherritt's underground exploration was continued from the Farley shaft and, in addition, a company exploration party discovered copper ore at Fox Lake, 30 miles southwest of Lynn Lake.

In 1961, British Columbia had one of its most active periods in recent years. Exploration parties were busy in all parts of the province, one new mine started production in 1961, and three mines were preparing for production by 1962 or 1963. Production of copper in 1961 rose to 19,421 tons valued at \$11,337,869 and exceeded the 1960 total by 2,862 tons and \$1,355,317. Cragmont Mines Limited became British Columbia's newest producer in September when ore was shipped to its 4,000-ton-a-day concentrator. The mine and mill are located in the Promontory Hills near Merritt. Cowichan Copper Co. Ltd., on Vancouver Island, closed its mine at Cowichan Lake and started underground development and mill construction at the Sunro mine near Jordan River; the mill will have a capacity of 1,500 tons a day and only the thickener tanks and filters will be located on the surface. The Consolidated Mining and Smelting Company started mill and plant construction and a program of underground development and exploration at the Benson Lake mine of Coast Copper Company Limited; production at 750 tons a day is scheduled to begin in 1962. Bethlehem Copper Corporation Ltd. completed negotiations to finance its mine to production. The property lies in the Highland Valley east of Ashcroft and production from the East Jersey orebody at 3,000 tons a day is scheduled for 1963. Among the producing mines, Howe Sound Company will increase production at its Britannia mine from 1,200 tons to 1,800 tons a day and Phoenix Copper Company Limited, near Greenwood, will increase production from 1,000 tons to 1,500 tons a day. Consolidated Woodgreen Mines Limited, also near Greenwood, continued operation at 750 tons a day but suspended exploration on the property. Giant Mascot Mines, Limited ships nickel-copper concentrate to Japan from its property near Hope; results obtained from an on-property exploration program at Giant Mascot have added substantially to ore reserves.

North Rankin Nickel Mines at Rankin Inlet on the west coast of Hudson Bay accounted for all of the 486 tons of copper valued at \$272,000 that were produced in the Northwest Territories in 1961. Many exploration parties were at work in the western sector of the Northwest Territories and in the Yukon Territory. Interesting high-grade copper-silver mineralization was found in the Nahanni River area, new interest was being shown in the Whitehorse copperbelt and exploration was continuing in the Kathleen Lakes area of southwestern Yukon.

Uranium.—The principal uranium deposits in Canada are found in three geographically and geologically different areas. The deposits in the Elliot Lake-Blind River district of northern Ontario occur in quartz-pebble conglomerates and are by far the largest in Canada. Ore reserves are estimated at 280,000,000 tons grading 0.12 p.c. U_3O_8 . The deposits in the Bancroft area of southeastern Ontario are the only pegmatitic granite dykes being worked for uranium in Canada. Some of the orebodies in these dykes are unusually large and persistent in depth, and average about 0.10 p.c. U_3O_8 . Vein-type deposits, containing pitchblende, are being mined in the Beaverlodge Lake area on the north shore of Lake Athabasca in northern Saskatchewan. The grade of the ore in these deposits, ranging between 0.18 and 0.25 p.c. U_3O_8 , is relatively high compared with the other two types.

The measured, indicated and inferred uranium ore reserves in Canada as of Dec. 31, 1961 were estimated at 290,000,000 tons, grading 0.12 p.c. U_3O_8 [equivalent to 348,000 tons of uranium oxide (U_3O_8)] and are considered to be the largest in the world. The reserves calculated for the Elliot Lake district constitute about 96 p.c. of the total. In 1958, Canada was the world's leading producer of uranium concentrates; in 1959 the value of uranium production climbed to \$331,000,000 and was, for the second consecutive

year, higher than that of any other Canadian-produced metal. The value declined to \$269,938,192 in 1960 and again in 1961 when production of uranium oxide (U_3O_8) amounted to 9,800 tons valued at \$204,138,553. Production has declined as mines have continued to close following the United States Atomic Energy Commission announcement in November 1959 that it would not continue to purchase uranium from Canada in excess of contract commitments that were to expire in 1962 and 1963. As a result of this decision, arrangements were made to allow Canadian producers to stretch out to the end of 1966 the undelivered portion of uranium under their sales contracts. The stretch-out plan was designed to prevent a severe disruption in the industry that otherwise would have occurred in the 1962-63 period.

Early in 1961, two uranium mines closed—the Quirke mine of Rio Algom Mines Limited and the Stanleigh mine of Preston Mines Limited. In the Elliot Lake district, four mines continued production throughout the year—those of Denison Mines Limited and Stanrock Uranium Mines Limited, and two mines (Milliken and Nordie) owned by Rio Algom. In the Bancroft area, two mines operated by Bicroft Uranium Mines Limited and Faraday Uranium Mines Limited remained in operation. In the Lake Athabasca district, two mines continued to operate—the government-owned mine of Eldorado Mining and Refining Limited and the privately owned mine of Gunnar Mining Limited. At the end of the year only eight mines (seven companies) were producing uranium compared with 23 at the peak period in 1959; only four mines are expected to continue beyond 1963 and only one until 1966. Plans for future production necessitate a reduction, annually, over the next five years so that in 1966 contract deliveries are expected to be about 1,100 tons of U_3O_8 . The number of mine employees at all mines declined from 11,792 at the beginning of 1960 to about 4,650 at the end of 1961.

As of Dec. 31, 1961, the amount of uranium (U_3O_8) to be delivered under the stretch-out plan ending in November 1966 was approximately 21,000 tons. This figure does not include 12,000 tons of unallotted uranium which, according to "letters-of-intent", are scheduled for delivery to the United Kingdom Atomic Energy Authority (UKAEA) during the period Mar. 31, 1963–Dec. 31, 1966. However, delivery date and price were being renegotiated by the UKAEA during the latter half of 1961 and early 1962.*

The Mines Branch of the federal Department of Mines and Technical Surveys, in collaboration with Eldorado Mining and Refining Limited and the Canadian Uranium Research Foundation, continued its program of research into non-nuclear uses of uranium. This program was undertaken in an effort to find new uses for uranium in the metals field in order to provide an additional outlet for production during the period of declining demand. The new uranium steel alloy, developed by the Mines Branch in 1960, has been undergoing tests on a commercial scale. Although the tests of this new alloy on a laboratory scale have been most promising, further tests and economic studies on a commercial scale will be necessary to determine what benefits uranium holds for the steel industry.

Uranium producers are allowed to sell as much surplus uranium as they can to countries that hold bilateral agreements with Canada for co-operation in the peaceful uses of atomic energy but there have been very few sales of this nature. Apart from the special contract agreements for the sale of uranium to the United States and Britain, Canada holds bilateral agreements with Australia, Japan, Pakistan, Switzerland and EURATOM (Belgium, West Germany, France, Italy, Luxembourg and the Netherlands). For other countries, a Canadian producer may, subject to government approval, sell up to 2,500 lb. of uranium.

Iron Ore.—Canadian producers' shipments of iron ore decreased by 5.4 p.c. in 1961 to 20,383,333 tons; the all-time high was 24,488,325 tons in 1959. However, the value of iron ore shipments increased from \$175,082,523 in 1960 to \$180,457,020 in 1961. Imports decreased slightly while receipts of domestic ores increased, showing a net increase in consumption. Exports, representing over 85 p.c. of total shipments, declined.

* On May 22, 1962, the Prime Minister announced that agreement on the terms of a contract had been reached with Britain.

In the United States, Canada's principal market, relatively large stockpiles and a low ore-consumption rate prevailed throughout most of the year. Shipments by Venezuela, Canada's main competitor in exports to the United States market, declined for the first time since initial production there in 1950. In contrast, Canada experienced declines in 1958, 1960 and 1961. Canadian shipments to Britain and Western Europe decreased slightly in 1961 as most major steel-producing countries operated at lower levels. In addition, the present and near-future availability of iron ore from countries in Asia, South America and Africa, particularly Liberia, has tended to weaken the bargaining position of several traditional suppliers, including Canada. The 1961 softening of the overseas market in Western Europe can be described as a short-term pause in the strong growth pattern that evolved during the 1950's and was forecast to continue well into the 1960's. In Japan, steel producers have been consuming imported iron ore at an exceedingly rapid rate and Canadian ore from the British Columbia coast has found a ready market in that country with the volume of shipments limited only by the companies' ability to produce.

Iron and steel production in Canada reached record levels in 1961. Prior to 1939, most of Canada's iron ore requirements were met by imports from the United States Lake Superior district and from Newfoundland. Since then, Newfoundland has joined Confederation and several new mines have been brought into production in Quebec, Labrador and Ontario. As Canadian ores have become available, the domestic steel industry has consumed increasing quantities.

The availability of Canadian iron ore in increasing quantity and quality continues to affect the pattern of international trade. From 1950 to 1959, world trade in iron ore increased from 43,700,000 long tons to 130,500,000 long tons and this trend is continuing. Sweden and France were the major exporters in 1950 but by 1959, Canada, Venezuela and the Soviet Union had become important ore exporters and significant quantities were being derived from several other countries in Africa, Asia and South America. In Canada, three projects recently completed or under construction in Labrador-Quebec will result in a total annual Canadian productive capacity of over 40,000,000 long tons compared with an estimated 26,500,000 long tons in 1961; most of this material will be shipped overseas to companies with a financial interest in one or more of the properties. Similarly, there are many projects under construction in such countries as Peru, Chile, India, Malaya, Angola, Mauritania, Swaziland and Australia that will each add at least 1,000,000 tons of productive capacity for export markets. It is quite clear that the 1960's will be a decade in which quality ores will be abundantly available. As in the past, no one country will have a monopoly of supply.

Not all Canadian producers experienced a decline in shipments during 1961. Those companies producing high-grade concentrates or agglomerates in Ontario and Quebec actually increased shipments as did one producer of medium-grade, direct-shipping ore in Ontario. In general, however, producers of medium-grade ores, whether direct-shipping or beneficiated, shipped smaller amounts than in 1960. With another producing company making initial shipments in 1961, the number of mining operations reached 13. In addition, the number of companies producing by-product iron ore from the processing of sulphide ores to recover sulphur dioxide and, in some cases, other metals such as nickel and cobalt, increased to three and another company is expected to start by-product production early in 1962. A fifth company mines ilmenite ore for smelting in its electric furnace plant at Sorel, Que.; its products include titania slag for pigment manufacture and pig iron.

Iron Ore Company of Canada, with direct-shipping ore deposits astride the Labrador-Quebec border, 360 miles north of the port of Sept Îles, Que., is the largest producer, having accounted for over 40 p.c. of 1961 Canadian shipments. Wabana Mines of the Dominion Steel and Coal Corporation, Limited, produces medium-grade concentrate from its underground mines on Bell Island, Nfld., and accounted for about 14 p.c. of the year's shipments. High-grade pellets from Hilton Mines, Ltd. near Shawville, Que., accounted for another 4 p.c. Quebec Cartier Mining Company, a new producer in 1961, contributed 5.5 p.c. by shipping high-grade concentrate from its new mine and beneficiation plant at Gagnon and its port at Port Cartier, Que.

In Ontario, Caland Ore Company Limited, Canadian Charleson, Limited and Steep Rock Iron Mines Limited continued to produce direct-shipping and medium-grade concentrates in the Atikokan area in 1961. Canadian Charleson shipped small amounts from stockpile. Steep Rock, the area's oldest producer, and Caland accounted for 6.7 p.c. and 5.5 p.c., respectively, of the 1961 shipments. In the Michipicoten area, Algoma Ore Properties Division of The Algoma Steel Corporation, Limited operates mines and a sinter plant at Wawa. This company, which accounted for 9 p.c. of the 1961 shipments, opened a new underground mine. Marmoraton Mining Company, Limited produces high-grade pellets from its mine and plant near Marmora, and Lowphos Ore, Limited produces high-grade concentrate from its operations near Capreol. Together, these companies produced 5.6 p.c. of the country's shipments in 1961.

Three British Columbia producers accounted for 6.3 p.c. of total Canadian shipments; Empire Development Company, Limited and Nimpkish Iron Mines Ltd. operate mines on Vancouver Island, and Texada Mines Ltd. produces from mines on Texada Island.

By-product iron ore was produced by The Consolidated Mining and Smelting Company of Canada Limited at Trail, B.C., for the first time in 1961. The International Nickel Company of Canada, Limited and Noranda Mines, Limited continued to produce from their plants at Copper Cliff and Cutler, Ont., respectively. At Sorel, Que., Quebec Iron and Titanium Corporation smelts ilmenite ore from its mine near Havre St. Pierre to produce titania slag and pig iron.

As already stated, properties being developed for production will result in an increase in Canada's productive capacity to over 40,000,000 long tons by 1965. In the Wabush Lake area of Labrador, Iron Ore Company of Canada and Wabush Iron Co. Limited will commence the production of high-grade concentrate and pellets in 1962 and 1965 at the annual rate of 7,000,000 and 6,000,000 long tons, respectively. In Quebec, Quebec Cartier Mining Company will reach its planned capacity production of 8,000,000 long tons a year in 1962. In Ontario, Jones & Laughlin Steel Corporation will be producing 1,000,000 long tons of high-grade pellets from new facilities to be erected near Kirkland Lake. The two projects in Labrador and the one in Ontario will require a capital expenditure of approximately \$480,000,000. In British Columbia, three new producers plan to start shipments in 1962 at a combined rate of 1,300,000 long tons a year. By that time, two of the present producers will have ceased production, leaving a net productive capacity of about 1,700,000 long tons.

Gold.—The Royal Canadian Mint price for gold rose above \$35.00 an oz.t. in Canadian funds in June 1961 for the first time since February 1952. In 1961, average Mint price was \$35.44 compared with \$33.95 in 1960 and \$33.57 in 1959. Despite the improved price, gold production decreased in 1961 to 4,425,820 oz.t. from 4,628,911 oz.t. and value of production at \$156,851,060 was somewhat lower than the 1960 value of \$157,151,527. The Minister of Finance announced in Parliament during the Budget Speech of June 20, 1961 that the Federal Government would take action to reduce the value of the Canadian dollar in relation to the United States dollar. As a result of this policy, the Mint price for gold increased to \$36.35 oz.t. in the week of July 3-7. The price remained above \$36.00 an oz.t. for the remainder of the year and reached the year's highest point of \$36.51 oz.t. in the week of Dec. 11-15.

Decreased gold production in 1961 was due primarily to the closing of six lode gold mines between August 1960 and August 1961; four of these mines had been in operation for more than thirty years. Three small lode gold mines started producing during the same period. Another factor contributing to lower gold production was a sharp drop in output from Canada's largest lode gold mine, Kerr-Addison Gold Mines Limited in the Larder Lake district of Ontario. Operating costs continued to rise in most gold mining districts, especially in Ontario where the 3-p.c. sales tax introduced in September 1961 resulted in increased cost for equipment and materials.

A total of 53 lode gold mines operated during 1961, one less than in 1960. Forty mines received cost assistance under the terms of the Emergency Gold Mining Assistance Act. The gold mines not eligible for cost assistance had costs less than \$26.50 oz.t. and these mines sold most of their gold on the open market.

In 1961, the proportion of gold coming from lode gold mines decreased to 84.4 p.c. from 85.9 p.c. and by-product gold recovered from base-metal ores increased to 14.0 p.c. from 13.4 p.c. Placer gold accounted for 1.6 p.c. compared with 1.7 p.c. in 1960. Gold maintained sixth position in value among minerals produced in Canada, following crude petroleum, nickel, copper, uranium oxide and iron ore. Canada remained the second largest gold-producing country in the Free World, following the Republic of South Africa.

Ontario was the main gold producer, accounting for 58.7 p.c. of the 1961 total output. Production was lower, with an estimated 2,597,289 oz.t. compared with 2,732,673 oz.t. in 1960. Only the Red Lake-Patricia and Port Arthur mining divisions showed increases. Thirty lode gold mines operated in the province during 1961; 13 of them in the Porcupine district where the chief producers were Hollinger Consolidated Gold Mines, Limited (Canada's second largest gold producer), McIntyre Porcupine Mines, Limited, Dome Mines Limited and Aunor Gold Mines Limited. Carium Mines Limited (formerly Coniaurum Mines, Limited) ceased operating in July 1961. In the Larder Lake area, only one lode gold mine operated but this was Canada's largest gold producer, Kerr-Addison Gold Mines Limited; production from this mine decreased by 14 p.c. from an all-time high of 592,245 oz.t. in 1960. In the Red Lake Patricia mining division, seven gold mines operated, the chief producers being Campbell Red Lake Mines Limited, Madsen Red Lake Gold Mines Limited and Dickenson Mines Limited. In the Kirkland Lake district, six mines recorded production but Sylvanite Gold Mines, Limited, closed its mine in August. The main Kirkland Lake producers were Macassa Gold Mines Limited, Wright-Hargreaves Mines, Limited, and Upper Canada Mines, Limited. In the Port Arthur mining division, MacLeod-Cockshutt Gold Mines Limited and Leitch Gold Mines Limited continued to operate and Consolidated Mosher Mines Limited prepared for shipments to the MacLeod-Cockshutt mill by early 1962. Renabie Mines Limited continued to operate in the Sudbury mining division. Some 64,000 oz.t. of gold were recovered as a by-product from base-metal ores in Ontario, mainly from the copper-nickel mines of the Sudbury district. No placer gold production was reported.

Quebec produced 23.8 p.c. of Canada's total gold production, compared with 22.4 p.c. in 1960. Thirteen lode gold mines operated during 1961 and production totalled 1,052,588 oz.t. compared with 1,035,914 oz.t. in 1960. One small lode gold mine, Marban Gold Mines Limited, started shipping ore to the customs mill of Malartic Gold Fields Limited in July 1961. The largest lode gold producers were Lamaque Mining Company Limited and Sigma Mines (Quebec) Limited at Bourlamaque, and East Malartic Mines, Limited and Barnat Mines Ltd. at Malartic. Gold recovered as a by-product from base-metal ores increased by 4.5 p.c. and represented 39.2 p.c. of the total gold production. Beauce Placer Mining Co. Ltd. commenced dredging for placer gold in the Gilbert River near East Beauceville in the Eastern Townships in August; prior to this operation, there had been no appreciable amount of placer gold recovered in the province since 1899.

The Northwest Territories produced 9.1 p.c. of the gold recovered in Canada during 1961. All production came from lode gold mines in the Yellowknife district and totalled 402,580 oz.t. compared with 418,104 oz.t. in 1960. Four gold mines operated, with Giant Yellowknife Mines Limited (Canada's third largest lode gold producer) and Consolidated Discovery Yellowknife Mines Limited being the main producers. Several prospective gold mines were under development in the Territories.

British Columbia produced 3.6 p.c. of Canada's gold output in 1961 compared with 4.6 p.c. in 1960; gold recovered decreased to 159,296 oz.t. from 212,859 oz.t. Four lode gold mines operated, Bralorne Division mine of Bralorne Pioneer Mines Limited being the only large producer. French Mines Ltd., at Hedley, ceased operations in May and an old gold mine at Rock Creek was reopened by McKinney Gold Mines Limited, from

which shipments to the Trail smelter of The Consolidated Mining and Smelting Company started in July. Gold recovered as a by-product from base-metal ores accounted for 16.5 p.c. and that recovered from placer operations for 1.5 p.c. of the total gold produced in the province in 1961.

In the Prairie Provinces, Manitoba recovered 56,753 oz.t. compared with 52,762 oz.t. in 1960. Lode gold from San Antonio Gold Mines Limited and Forty-Four Mines Limited amounted to 54.0 p.c. of the provincial total, the remainder being recovered from base-metal mines in the Flin Flon and Lynn Lake areas. Saskatchewan recovered 73,898 oz.t. compared with 84,775 oz.t. in 1960, with all gold coming from base-metal mines near Flin Flon on the Manitoba-Saskatchewan border. A small amount of placer gold was recovered from the North Saskatchewan River near Edmonton, Alta. In the Yukon Territory, the total recovered was 67,775 oz.t. compared with 78,115 oz.t. in 1960, all of it from placer operations. About 80 p.c. of the gold recovered came from the dredging and hydraulic mining operations of The Yukon Consolidated Gold Corporation Limited in the Dawson area. No gold production was reported from the Maritime Provinces but Newfoundland production amounted to 15,470 oz.t. compared with 13,515 oz.t. in 1960.

Lead and Zinc.—In 1961 lead metal production from domestic ores, together with recoverable metal exported in ores and concentrates, was estimated to be 231,197 tons. This was the highest level reached since 1942 when production was 256,071 tons. The 1961 production was valued at \$47,395,393. In 1960, 205,650 tons were produced, having a value of \$43,926,888. British Columbia accounted for the largest part of the increase, having produced over 24,000 tons more than in 1960. The average price of lead for the year was 10.21 cents compared with 10.68 cents in 1960.

During 1961, exports of lead in ores and concentrates totalled 70,967 tons. Shipments to the United States were 34,525 tons; to Belgium-Luxembourg, 24,001 tons; to West Germany, 12,177 tons; and to other countries, 264 tons. During the same period, 42,538 tons of refined lead were shipped to Britain; 55,947 tons to the United States; 6,676 tons to Japan; 5,749 tons to India; 4,508 tons to the Netherlands; and 2,219 tons to other countries. In 1960, exports of lead concentrates totalled 51,335 tons and exports of refined lead 96,449 tons.

Output of zinc in 1961, including recoverable metal exported in ores and concentrates, at 412,363 tons was slightly higher than the 1960 production of 406,873 tons but, as a result of lower prices, its value was \$103,781,801 compared with the 1960 value of \$108,635,003. The average price per pound of Prime Western grade zinc was 11.67 cents in 1961 and 12.71 cents in 1960.

Exports of zinc in ores and concentrates during 1961 totalled 199,322 tons. Shipments to the United States were 131,490 tons; to Belgium-Luxembourg, 22,266 tons; to Britain, 11,582 tons; to West Germany, 21,349 tons; and to France, 5,794 tons. During this period, 208,272 tons of refined zinc were shipped to 23 countries, of which 86,068 tons went to Britain; 70,443 tons to the United States; 15,387 tons to India; and 13,527 tons to Japan. In 1960, a total of 169,894 tons of zinc concentrate and 207,091 tons of refined zinc were exported.

Preliminary data for the first nine months of 1961 indicate that consumption of lead during the whole of the year was slightly lower than 1960, and consumption of zinc was somewhat higher. Consumption of primary and secondary lead in 1960 was 72,087 tons; consumption of zinc was 59,143 tons.

British Columbia's importance as a producer of lead and zinc in Canada remained unchanged in 1961; that province continued to supply close to 80 p.c. of the lead production and 50 p.c. of the zinc. The Sullivan mine at Kimberley, the Bluebell mine at Riondel and the H.B. mine at Salmo, all operated by The Consolidated Mining and Smelting Company, are the principal producers. Their combined daily milling capacity is 11,900 tons, the largest mill (10,000 tons) being at the Sullivan mine. Concentrates from mines in British Columbia, Yukon Territory and some foreign areas were treated at Consoli-

dated's smelter at Trail. Other important British Columbia producers of lead and/or zinc in 1961 included Canadian Exploration, Limited and Reeves MacDonald Mines Limited, both near Salmo; Sheep Creek Mines Limited, west of Invermere; and Howe Sound Company, Britannia Division, north of Vancouver.

In Manitoba and Saskatchewan, Hudson Bay Mining and Smelting Co., Limited—the operator of the large Flin Flon mine, the Coronation and Schist Lake mines at Flin Flon, and the Chisel Lake mine at Snow Lake in Manitoba—was the only producer of lead and zinc. Some zinc was recovered along with copper from ores produced at all four mines; lead was recovered only from ore produced at the Chisel Lake mine, which commenced production in September 1960 at about 1,000 tons a day. All ores are concentrated in a central 6,000-ton mill at Flin Flon, to which a lead circuit was added in 1960. Zinc is recovered in the company's electrolytic refining plant, which has an annual productive capacity of 73,000 tons of refined zinc. The lead concentrate is shipped to a custom smelter.

Ontario's only production of zinc concentrates comes from copper-zinc mines operated by Geco Mines Limited and Willroy Mines Limited at Manitouwadge, north of Lake Superior. A small amount of lead concentrates was produced by Willroy. In January 1961, Sherbrooke Metallurgical Company Limited started continuous operation of a 150-ton-per-day zinc roaster at Port Maitland on Lake Erie.

Quebec's main source of zinc was copper-zinc ore from mines in the Noranda-Val d'Or area operated by Quemont Mining Corporation, Limited, Manitou-Barvue Mines Limited, Normetal Mining Corporation, Limited, Sullico Mines Limited (East Sullivan mine) and Waite Amulet Mines, Limited. In the same area, Vauze Mines Limited commenced production of copper and zinc concentrates in October 1961. At Bachelor Lake on the Barraute-Chibougamau railway in northwestern Quebec, The Coniagas Mines, Limited started production of lead and zinc concentrates in March. Other lead producers were Manitou-Barvue which produced some lead concentrate in addition to copper and zinc concentrates, and New Calumet Mines Limited whose lead-zinc-silver mine is 70 miles west of Ottawa.

The only large lead-zinc producer in the Atlantic Provinces was American Smelting and Refining Company which operates a mine at Buchans, Nfld. Late in 1961, Magnet Cove Barium Corporation commenced production of a bulk concentrate containing lead, zinc, copper and silver at Walton, N.S.

Exploration and development activities in 1961 were confined mainly to the Noranda and Mattagami Lake areas of northwestern Quebec, Wolfe County in the Eastern Townships of Quebec, and the Bathurst area of New Brunswick. In the Noranda area, Vauze Mines Limited did some underground exploration and development before starting production in October. Late in the year, Lake Dufault Mines Limited commenced diamond-drill exploration on its property adjacent to Vauze Mines. In the Mattagami Lake area, Mattagami Lake Mines Limited did extensive underground development and Orchan Mines Limited started shaft-sinking. Solbec Copper Mines, Ltd. prepared its property in Wolfe County for production of copper, zinc and pyrite concentrates early in 1962. Some exploration was done on lead-zinc properties in the Bathurst area by several companies including Anaconda Company (Canada) Ltd., Anacon Lead Mines Limited, Brunswick Mining and Smelting Corporation Limited, The Consolidated Mining and Smelting Company of Canada Limited, and the New Jersey Zinc Exploration Co. (Canada) Ltd. Preparations were made by Heath Steele Mines Limited to commence milling of copper-zinc ores early in 1962; Heath Steele formerly operated its mine for about 12 months during 1957-58.

Silver.—Production of silver in Canada during 1961, estimated at 31,981,210 oz.t. and valued at \$30,068,733, was considerably lower than the record output of 34,016,829 oz.t. in 1960 valued at \$30,244,363. Ontario, the largest producer, registered a decline of about 2,000,000 oz.t. Ontario, British Columbia and Yukon Territory account for four-

fifths of Canada's production. Nova Scotia produced silver in significant quantities for the first time since 1956; late in the year, Magnet Cove Barium Corporation began to mill sulphide ore at Magnet Cove, near Walton.

World production in 1960 was estimated at 236,500,000 oz.t., 9 p.c. higher than the 1959 production of 216,800,000 oz.t. Most of the increase was attributable to increased refinery production in the United States where 40,000,000 oz.t. were produced compared with 23,000,000 oz.t. in 1959. Contrary to the refinery production trend, mine output of silver in the United States continued the decline which started in 1956 and, as a result, Canada retained its position for the second consecutive year as the world's second largest mine producer of silver, following Mexico.

Silver consumption in Canada in 1960, at the record level of 11,742,064 oz.t., was considerably higher than the previous record of 10,730,255 oz.t. attained in 1957 and the consumption in 1959 of 10,202,769 oz.t. The increase was attributable to larger coinage requirements which amounted to 7,481,617 oz.t. compared with 5,737,347 oz.t. in 1959. World consumption (excl. U.S.S.R.) in 1960 was estimated at 319,300,000 oz.t., a gain of 6 p.c. over 1959.

Base-metal ores treated at domestic and foreign smelters have been Canada's chief source of silver for many years. In 1959 and 1960, about 77 p.c. of the total production was from these ores; the northern Ontario silver-cobalt ores of Cobalt and Gowganda accounted for about 21 p.c. of the total and the remaining 2 p.c. was extracted from gold ores.

Canada's principal producer of refined silver from base-metal ores is The Consolidated Mining and Smelting Company which operates lead and zinc treatment plants at Trail, B.C., and produced 8,690,244 oz.t. of silver in 1960, about 26 p.c. of total Canadian production. Other important producers were: Canadian Copper Refiners Limited, the operator of a copper refinery at Montreal East, Que.; Deloro Smelting & Refining Company, Limited, which until April 1961 operated a silver-cobalt refinery at Deloro, Ont.; International Nickel, the operator of treatment plants for nickel-copper ores at Copper Cliff, Ont.; and Hollinger Consolidated Gold Mines, Limited and the Royal Canadian Mint, which operate gold refineries at Timmins and Ottawa, Ont., respectively. Canada's largest mine producer of silver, as the primary product, is United Keno Hill Mines Limited, which produced 7,231,900 oz.t. from its three mines in the Mayo district of Yukon Territory during the year ended Sept. 30, 1961. Other leading primary producers were: Mastodon-Highland Bell Mines Limited in British Columbia; Agnico Mines Limited and Langis Silver & Cobalt Mining Company Limited near Cobalt, Ont.; and McIntyre Porcupine Mines, Limited and Siscoe Metals of Ontario Limited near Gowganda, Ont. These five companies together produced 6,223,702 oz.t. in 1960.

The average Canadian price of silver in 1961 was 94.39 cents an oz.t. compared with 88.92 cents in 1960. On Nov. 28, 1961, the President of the United States announced that the Treasury Department would no longer sell government-held silver to domestic consumers; as a result, there was an immediate price increase of about 10 p.c.

Cobalt.—Cobalt is derived as a by-product from the smelting and refining of the nickel-copper ores of Sudbury, Ont., and Lynn Lake, Man., and from the nickel ores of Thompson, Man. International Nickel recovers cobalt from its refinery operations at Port Colborne, Ont., and Clydach, Wales, based on its Sudbury and Thompson ores. Falconbridge Nickel recovers cobalt in the refining of its Sudbury nickel-copper matte at its refinery at Kristiansand, Norway. Sherritt Gordon produces refined cobalt powder and briquettes and cobalt metal strip in its refinery at Fort Saskatchewan, Alta., from nickel-copper concentrates shipped from its mine at Lynn Lake in northern Manitoba. Deloro Smelting & Refining Company, Limited closed its smelter at Deloro, Ont., in April 1961 after a final clean-up run on silver ores from the Cobalt and Gowganda areas of Ontario. In 1961, Canadian cobalt production amounted to 3,236,323 lb. valued at \$4,902,657, compared with 3,568,811 lb. valued at \$6,763,016 in 1960.

Columbium.—St. Lawrence Columbium and Metals Corporation completed the construction of a 500-ton-a-day mill at Oka, Que., and made its first shipment of pyrochlore concentrate (50-55 p.c. Cl_2O_3) in October 1961. Two other companies—Quebec Columbium Mines Limited and Columbium Mining Products Ltd.—have carried out extensive research and exploration programs in the same area. Geo-Met Reactors Limited was formed in 1961 and produced for export two grades of ferrocolumbium and a pyrochlore steel-additive that is marketed under the trade name 'Pycol'. Concentrates from Oka constitute the raw material used by Geo-Met.

Molybdenum. Molybdenite Corporation of Canada Limited continued to be the sole Canadian producer of molybdenite and molybdic oxide in 1961. Shipments during the year from the company's mine at Lacorne, Que., amounted to 765,897 lb. of contained molybdenum valued at \$1,085,091, compared with 767,621 lb. valued at \$1,015,380 in 1960. Preissac Molybdenite Mines Limited, in which Molybdenite Corporation holds a substantial interest, and Anglo-American Molybdenite Mining Corporation continued development and exploration work on their properties in the Lake Preissac area of Quebec. Noranda Mines, Limited commenced a pilot-plant study at the property of Gaspé Copper Mines, Limited (a wholly owned subsidiary) to investigate the economics of by-product molybdenum recovery. In October 1961, Noranda announced plans to examine by underground exploration its Mount Boss property in British Columbia.

Titanium.—Ilmenite, an iron-titanium oxide, is mined in the Allard Lake and St. Urbain areas of Quebec. Ilmenite from St. Urbain is sold as heavy aggregate. Most of the Allard Lake ore is smelted at Sorel, Que., in electric furnaces by Quebec Iron and Titanium Corporation to produce a high titania slag. Most of this product is exported to pigment producers in the United States, Japan and Britain but some goes to Canadian Titanium Pigments Limited at Varennes, Que. In 1961, the value of titanium shipped as ore, heavy aggregate and titanium-bearing slag was \$16,287,293, an amount \$3,340,293 above the previous high reached in 1960.

Canadian Titanium Pigments Limited completed a \$6,000,000 expansion program that increased its annual production capacity from 32,000,000 lb. of TiO_2 to 50,000,000 lb. British Titan Products (Canada) Limited—a wholly owned subsidiary of British Titan Products Company, of Britain—continued the construction of its titanium-pigment manufacturing plant at Tracy, Que. The plant, scheduled for completion in 1962, will have an initial rated capacity of 44,000,000 lb. a year.

Selenium and Tellurium.—These metals are recovered from the anode muds produced by the refining of blister copper in the plants of Canadian Copper Refiners Limited at Montreal East, Que., and International Nickel at Copper Cliff, Ont. The Canadian Copper Refiners plant is one of the largest selenium and tellurium metal-and-salts plants in the world. Selenium production in 1961 totalled 469,892 lb. valued at \$2,990,595 compared with 521,638 lb. valued at \$3,651,466 in 1960. Tellurium production in 1961 amounted to 95,873 lb. valued at \$475,545, an increase of 51,191 lb. and \$319,157 over 1960.

Magnesium.—Dominion Magnesium Limited is the only producer of magnesium metal in Canada. Dolomite of exceptional purity is quarried and reduced to metal by the ferrosilicon method at Haley, Ont. Plant expansion from 8,000 tons to 10,000 tons annual capacity was commenced in 1961. Production for the year was estimated at 7,740 tons compared with 7,289 tons in 1960.

Aluminum.—Canada is second in world production of aluminum. Bauxite and alumina for use by Canadian smelters are imported and for this reason aluminum metal production is classed with manufactures, not with smelter production of metals from minerals of domestic origin. Annual capacity of the six Canadian smelters was 872,000 tons in 1961. Canadian British Aluminium Company Limited will expand the present

90,000 tons annual capacity of its smelter at Baie Comeau in Quebec by 45,000 tons; completion is expected by 1965. All other smelters in Canada are owned and operated by the Aluminum Company of Canada, Limited and are located at Arvida, Shawinigan, Isle Maligne and Beauharnois in Quebec and at Kitimat in British Columbia.

Production of primary aluminum in 1960 was 762,012 tons of which 552,155 tons were exported. The value of these exports at \$243,034,000 represented 4.6 p.c. of the value of all commodity exports from Canada. Because of difficult marketing conditions, production in 1961 was reduced to 663,000 tons and 487,000 tons were exported.

Platinum Metals.—Production of platinum metals in Canada during 1961 totalled 404,883 oz.t. valued at \$23,829,172, compared with 483,604 oz.t. valued at \$28,873,508 in 1960. The metals are obtained as a by-product of the pyrometallurgical treatment of nickel-copper ores and include two groups—platinum-iridium-osmium and palladium-rhodium-ruthenium. Osmium is the only member of the platinum metals group not recovered in Canada. Formerly, all platinum production came from the Sudbury area of Ontario, but the new nickel mine at Thompson in Manitoba, which began operation early in 1961, provides a second source. In the metallurgical treatment of nickel-copper ores the platinum metals go with the nickel and copper through the reverberatory and converter stages to nickel and copper anodes. They are picked up as slimes from tank bottoms in the electrolytic stages. The platinum metal slimes, after separation from other precious metals and impurities, are then refined by a wet process to commercial platinum, palladium, iridium, rhodium and ruthenium.

Major world producers of platinum metals are the Republic of South Africa, Canada and the Soviet Union. World production during 1960 was estimated at 1,190,000 oz.t., each of the three countries producing approximately one-third. Neither South Africa nor the Soviet Union releases official production figures on the platinum metals.

December prices of platinum metals, per oz.t., in the United States, as reported in E. & M.J. Metal and Mineral Markets of Dec. 15, 1961 were: platinum \$80 to \$85; iridium \$70 to \$75; palladium \$24 to \$26; rhodium \$137 to \$140; osmium \$60 to \$70; and ruthenium \$55 to \$60. The platinum metals are now used principally as catalysts in the chemical industry and as electrical contacts in the electrical industry. Relatively minor amounts are used in jewellery and in dental-medical equipment.

Subsection 2.—Industrial Minerals

The total value of industrial mineral production increased in 1961 to a record \$527,014,000. This segment of the mining industry includes non-metallic minerals such as fluorspar, silica, etc., clay and other ceramic products, construction materials such as concrete aggregate and building stone. New production records were established for asbestos, elemental sulphur, sodium sulphate and titania.

Asbestos.—Despite the enormous growth in the production of asbestos in the Soviet Union and competition in European markets, Canada has maintained its position as the major supplier of this important mineral commodity to the world market. During 1961, shipments amounted to 1,171,000 tons valued at \$131,053,000.

Chrysotile, the most widely used variety of asbestos, occurs in several places in Newfoundland, Quebec, Ontario, British Columbia and Yukon Territory. However, the main centre of the industry is in the Eastern Townships of Quebec where 12 mines account for more than 90 p.c. of the nation's production. Two other mines are located elsewhere in Canada, one in northern Ontario and one in northern British Columbia, and Newfoundland will soon join them as an asbestos-producing province. Advocate Mines Limited is developing a large deposit at Baie Verte; a contract has been awarded for the construction of tide-water docking facilities, a fibre warehouse and a mechanical services building and it is expected that construction will start in 1962 on the milling

plant which will have a capacity of 5,000 tons per day of the asbestos ore. Murray Mining Corporation continued development of a deposit near Deception Bay in northern Ungava; the year's exploration program added to company ore reserves and engineering studies were under way for developing the deposit for production.

One of the important developments in 1961 was the establishment of an Asbestos Fibre Standards Laboratory by the Quebec Asbestos Mining Association (representing the asbestos producers in that province) and the University of Sherbrooke. The new Laboratory is intended as an impartial testing unit which will ensure uniformity of grading throughout the Quebec industry. It is housed in the Engineering Division of the University.

Construction Materials.—Portland cement production now ranks ninth in the entire mineral industry in terms of value of output. In the industrial mineral group, it is exceeded only by asbestos, sand and gravel. For several years after World War II, Canada imported considerable cement to supplement production from domestic plants, but the industry has since expanded so rapidly that today this country exports between 3 p.c. and 5 p.c. of its output to the United States. There are 19 plants in operation across Canada, with a combined annual capacity of 8,750,000 tons; cement is manufactured in every province except Nova Scotia and Prince Edward Island.

The steadily increasing market for cement products, such as ready-mixed concrete (in which form about 30 p.c. of the production is currently marketed), masonry and precast and prestressed shapes, is reflected in the establishment of new plants for their manufacture and also in the establishment of a trend toward more uniformity and improved quality in aggregates. Recently, as a result of this change in the market, several cement manufacturers have partially integrated their operations with companies making cement products and quarrying stone for concrete aggregate.

Lightweight aggregates have experienced rapid growth in recent years and are now important construction materials, especially in multi-storey structures. The use of this product in the construction of a 44-storey building in Montreal is reported to have replaced 1,200 tons of high quality structural steel. There are in Canada 11 plants making lightweight aggregate by expanding clay and shale, 10 plants processing vermiculite and nine plants expanding perlite.

Potash.—There was no production of potash in 1961 from the extensive deposits in Saskatchewan but it is anticipated that two companies will be mining the mineral during 1962. What is believed to be the world's largest high grade deposit of potash, in the form of the minerals sylvite and carnallite, occurs at depths varying from 2,800 feet to 3,500 feet under a large area of southern Saskatchewan. Reserves have been estimated at more than 6,400,000 tons of recoverable potash grading more than 25 p.c. K_2O .

Attempts to mine potash through shafts encountered technical difficulties caused by high water pressures in the wet and largely unconsolidated Blairmore formation. However, the two major companies pioneering in Canadian potash have applied substantial technical and financial resources in developing a solution to this problem. At the end of 1961, Potash Company of America Limited was completing the strengthening and repair of a 16-foot diameter concrete shaft installed during 1958; this company has a mining property at Patience Lake near Saskatoon and expects to ship potash to market during 1962. International Minerals and Chemical Corporation (Canada) Limited at Esterhazy used a novel technique, known as tubbing, to sink a shaft through the Blairmore. Seventy five-foot-high, segmented, cast iron rings were placed in a 300-foot section of the shaft to resist the hydraulic pressures experienced in the formation. The Esterhazy mine also is scheduled for production in 1962. By 1963, the company will have almost tripled the original size of its beneficiation plant needed to treat the crude potash and the 1,200,000-ton-a-year plant then will be the largest capacity potash unit on the Continent.

Other companies are active in exploring and developing the deposits in Western Canada. Standard Chemical Ltd. is studying the possibility of recovering potash by solution mining near Moose Jaw. Solution mining is commonly used in recovering salt from bedded deposits and has the advantage of not requiring large capital expenditures in shaft construction and underground mine development.

Future markets for Canadian potash are bright. The need for food for an expanding world population is reflected in steadily increasing world consumption of potash, one of the three leading fertilizer constituents. Growth in North American consumption is about equal to the production of one modest-sized mine annually. Although new potash areas are being developed in Jordan, Ethiopia and elsewhere, Canada may be expected to supply an important share of the world market in the future.

Sulphur.—With the development of natural gas fields in the western provinces, Canada has emerged as a major source of elemental sulphur. Until 1952, Canada's requirements for the elemental form were supplied by imports and, while imports are still necessary to meet demands in Eastern Canada, large-scale exports are required to market Western Canada production recovered as a by-product of natural gas processing. Based on estimates of gas reserves, the potential for recovery is between 150,000,000 and 300,000,000 tons of sulphur.

During 1961, 910,000 tons (both elemental and sulphur equivalent of smelter gases and pyrite) were shipped to consumers or used by producers in their own processes; 44 p.c. of the total was elemental sulphur. By the end of the year, Canada's exports of elemental sulphur were approaching a balance with imports of this commodity. Late in 1960 final approval was obtained for the export of large quantities of natural gas from Western Canada to the United States. This has made necessary the processing of substantial quantities of sour gas and consequently the recovery of larger quantities of elemental sulphur. As a result, the capacity of plants in Western Canada may be expected to increase from 2,000 tons per day at the end of 1960 to 6,200 tons during 1962. When fully developed, these plants will have an annual productive capacity of some 2,000,000 tons of sulphur.

Six new sulphur plants were under construction in 1961 and plans for others were being studied. Two of the new plants will have the capacity to recover 1,500 tons per day. In Alberta, Petrogas Processing Limited placed on stream in 1961 near Calgary a plant capable of producing 336,000 tons of sulphur per annum. Other plants were completed by Jefferson Lake Petrochemicals of Canada Limited at Coleman, Western Lease Holds Ltd. at Wildcat Hills, and Home Oil Company Limited at Carstairs. By the end of the year, 15 recovery plants were in operation in British Columbia, Alberta and Saskatchewan, converting sulphur compounds in natural gas into commercial grades of elemental sulphur.

Other Minerals.—Gypsum is mined in Newfoundland, Nova Scotia, New Brunswick, Ontario, Manitoba and British Columbia. The output in 1961 was in excess of 5,000,000 tons valued at over \$9,000,000. Much of the Canadian crude gypsum production is exported from the Maritimes to supply United States plants along the Atlantic seaboard. Bestwall Gypsum Company of Ardmore, Pennsylvania, is developing a deposit near River Denys Station, Cape Breton Island, to supply company plants in the United States with crude gypsum. The \$2,900,000 development will provide for a production of 5,500 tons per day. Flintkote Company of Canada Limited is proceeding with the development of gypsum deposits in the Flat Bay area of Newfoundland. An expenditure of \$2,000,000 will provide for the construction of a six-mile aerial tramway and deep-water shipping facilities at Turf Point. It is expected to be in operation during the latter half of 1962 and will supply plants at Humbermouth, Nfld., and at points in eastern United States. Gypsum reserves in the area are large and have been stated to be in the neighbourhood of 200,000,000 tons.

Salt is another important Canadian industrial mineral; more than 3,000,000 tons are produced annually, valued at over \$19,000,000.

Requirements of the kraft paper industry resulted in record production of 250,000 tons of sodium sulphate in Saskatchewan in 1961. Three of the four producers are using natural gas for the conversion of the natural mineral mirabilite to a commercial product, viz., 'salt cake'. In two of these operations a technique known as submerged combustion is being used and is resulting in improved efficiency. In 1961, Saskatchewan Minerals, Sodium Sulphate Division, reopened the Bishopric plant which had been idle for several years.

Late in 1960, Quebec Lithium Corporation resumed mining and milling of spodumene north of Val d'Or, to provide feed for the new lithium chemical plant and for continuing sales of ceramic-grade spodumene concentrate. By October 1961, the chemical plant was turning out about 6,000 lb. of high-purity lithium carbonate daily, a production that will be doubled. Early in 1962, Quebec Lithium will be marketing lithium hydroxide and monohydrate processed from lithium carbonate and is also planning to add lithium halides to the chemicals produced from spodumene.

Subsection 3.—Petroleum and Natural Gas

As a result of important new developments, 1961 was an exceptionally good year for many segments of the petroleum and natural gas industries. The production and transportation sectors of the petroleum industry benefited greatly from the Federal Government's national oil policy announced on Feb. 1, which was designed to achieve increased domestic production on a voluntary basis. Approximately one-half of Canada's crude-oil-producing capacity has been shut-in in recent years; the oil policy set production targets for Canadian producers so that a more favourable production-to-consumption ratio would be established. Specifically, output goals of crude oil and natural gas liquids were set at 625,000 bbl. a day by mid-1961; 640,000 bbl. a day for the whole year; and approximately 800,000 bbl. a day by the end of 1963. A change in the pattern of supply and distribution by the industry was under way and this resulted in the 1961 targets being reached. The average daily production of 642,000 bbl. surpassed the 1960 record output of 543,000 bbl. by 18 p.e. In Alberta, the large increase in output did not result in a correspondingly large expansion of exploration and development programs during the year since production facilities and oil reserves were more than adequate to meet the increased market demand. In British Columbia, however, the stimulus of a new pipeline being built to make British Columbia oil available to Vancouver refineries caused a sharp increase in oil development drilling and installation of production facilities. The 1961 value of crude petroleum and natural gas liquids production was \$509,834,660 compared with \$438,978,707 in 1960.

The natural gas industry had a highly successful year in 1961, both in terms of production and of capital investment. Production, valued at \$63,607,157, amounted to 646,018,204 Mcf., a 24-p.e. increase over the 1960 output and an all-time record. Thus, the large annual increases in natural gas production that have prevailed for the past decade continued without slackening, and the year-end completion of the Alberta-California gas pipeline ensures that the rapid expansion of output will continue through 1962. The Alberta-California gas pipeline, with its lateral feeders, was the largest item of capital expenditure; \$130,000,000 was spent on the Alberta and British Columbia section of the line. In addition, new natural gas processing plants costing about \$50,000,000 were built, several of them for the specific purpose of supplying the Alberta-California pipeline.

Table 1 shows production of oil and gas in Western Canada since 1954. The natural gas production figures exclude gas flared in the field, the percentage of which varies from year to year. In 1954, 20 p.e. of gross gas production was flared but in recent years increased demand has made it economical to gather a larger proportion of the gas produced, thereby reducing the percentage flared.

1.—Crude Oil and Natural Gas Production in Western Canada, 1954-61

Year	Crude Oil				Natural Gas		
	Man.	Sask.	Alta.	B.C.	Sask.	Alta.	B.C.
	'000 bbl.	'000 bbl.	'000 bbl.	'000 bbl.	Mcf.	Mcf.	Mcf.
1954.....	2,148	5,423	87,714	—	3,333,077	107,173,777	—
1955.....	4,146	11,317	113,025	—	6,706,743	133,007,493	—
1956.....	5,787	21,077	143,910	148	9,807,697	146,133,893	187,846
1957.....	6,090	36,861	137,492	341	13,994,347	183,140,820	8,274,942
1958.....	5,829	44,626	113,278	512	18,819,795	239,049,591	63,638,297
1959.....	5,056	47,442	129,967	866	33,612,966	297,568,926	69,128,708
1960.....	4,764	51,868	132,865	867	36,571,633	383,682,985	85,592,166
1961.....	4,485	56,000	157,650	658	35,000,000	497,925,000	94,462,454

The recent trend toward increased drilling in the more northwesterly portions of the Western Canada sedimentary basin continued in 1961. Although there were considerably fewer drilling rigs active during the first eight months of the year than in the same period of 1960, activity increased during the final four months to a level equal to that of the same period of the previous year. Despite generally fewer active rigs, the total footage drilled in 1961 was slightly higher than in 1960, reaching more than 13,500,000 feet. There were 2,840 wells drilled compared with 2,951 in the previous year, 1,577 being oil, 417 gas and 846 dry. Although there were fewer successful oil wells completed, the number of gas-well successes increased mainly as a result of greater concentration on exploring and developing the gas-rich strata of the foothills and northeastern British Columbia; much attention was also given to the development of known gas-producing regions in the southern half of Alberta.

Geophysical activity, in terms of crew-months, has shown a generally downward trend since 1952, which continued despite improved conditions in some other segments of the petroleum and natural gas industries. Nevertheless, even for the normal seasonal year-end upswing in geophysical (predominantly seismic) activity, the geophysical exploration companies found difficulty in getting sufficient skilled technical personnel, the loss of manpower resulting from the long recession suffered by this sector. Inasmuch as a large portion of the Western Canada sedimentary basin has received seismograph coverage, it has become common practice for exploration companies to trade or purchase records from previous operators and apply new evaluation techniques to them, thus avoiding unnecessary re-surveys. Although field work has declined, increasing emphasis is being given to such evaluation studies.

A moderate increase of petroleum reserves was recorded in 1961; year-end reserves of crude oil and natural gas liquids were placed at close to 4,500,000,000 bbl. Natural gas reserves were increased to a 1961 year-end total in excess of 35,000,000,000 Mcf., mainly through additions in Alberta and British Columbia.

British Columbia.—British Columbia was the only western province to show a substantial increase in drilling in 1961. The total number of wells drilled, including both exploratory and development wells, increased from 150 in 1960 to more than 200 in 1961, and the total footage drilled surpassed 1,000,000 feet for the first time. All of the increase may be ascribed to development of known oil and gas pools. The heaviest development program was in the Boundary Lake oil field where more than 40 new wells were drilled, and the areal extent of the field was doubled. This drilling program was prompted by the impending completion of a new oil pipeline which would allow the region's oil to be moved to Vancouver refineries. Exploration drilling resulted in several natural gas discoveries that appear important. One significant well drilled 85 miles northwest of Fort St. John produced a large flow of natural gas from strata of Triassic age and extended the known gas-productive region to 30 miles west of the Blueberry field. A very thick natural gas

pay section was found in Beaver River area, immediately south of the Yukon boundary, 16 miles west of the Liard River; preliminary reports suggest that this discovery is one of the most prolific gas wells yet drilled in Western Canada. Several widely spaced middle Devonian gas discoveries were made in a region some 50 miles northeast of Fort Nelson and north of the 1960 Kotcho Lake discovery. To a group of earlier gas wells near Fort Nelson was added the Clarke Lake discovery, 17 miles east-southeast of the town. On the whole, exploration and development drilling in British Columbia in 1961 was quite successful; only about 27 p.c. of the wells drilled were dry holes.

The highlight of British Columbia's petroleum industry in 1961 was the provision for access to the Pacific Coast market through construction of the new line of Western Pacific Products & Crude Oil Pipelines Ltd. Although the pipeline did not go into full-scale operation until January 1962, testing and filling of the line late in 1961 caused a sharp increase in crude oil and natural gas liquids production from the 5,000 bbl. a day output which satisfies local demand. The total yearly production of 2,200,000 bbl. exceeded 1960 output by 24 p.c. and the value to producers was \$2,800,000. The value of natural gas production in British Columbia, in contrast to the other western provinces, is considerably greater than that of liquid hydrocarbons: in 1961, field value of natural gas was \$8,700,000, and production amounted to 94,462,454 Mcf.

Alberta.—In 1961, the total exploratory footage drilled in Alberta for new petroleum and natural gas reserves and the development of known fields amounted to just under 10,000,000 feet, slightly less than in 1960; 1,600 wells were completed compared with 1,766 in the previous year. There was a greater concentration on the development of natural gas fields, leading to the completion of 342 gas wells compared with 276 in 1960 and to a considerable number of new gas discoveries both in the northwestern and in the better-developed southern portions of the province. The 777 new oil wells completed represented a substantial reduction from the 1960 total, the decrease resulting from the lack of major new oil fields requiring development and the excess productive capacity of existing fields. The advanced state of development of the province's largest oil field—the Pembina—caused a notable slow-down of drilling there; the group of fields in the Swan Hills region and the comparatively small Crossfield field, north of Calgary, continued to be the areas of greatest oil-field activity. In south-central Alberta, a new oil field—the Twining field—was designated following its discovery early in the year and subsequent successful drilling. An important oil find was made in the prolific Beaverhill Lake formation four miles east of the Kaybob field, and several significant natural gas discoveries were made near the Kaybob field, mainly to the southwest.

Alberta production of crude oil increased by 20.7 p.c. to 157,650,000 bbl. in 1961 and the gross value of crude oil sales was \$354,712,500. The volume of natural gas produced was 497,925,000 Mcf. and the gross value of sales was \$44,315,325.

Saskatchewan.—The decline of drilling in Saskatchewan which had been in evidence since 1957 halted in 1961, when there was a small increase in both the number of wells completed and the footage drilled. The reversal of trend was caused by a heavy schedule of development drilling, although exploratory drilling continued to decline. No major new fields were located but several interesting oil discoveries were made in the southeast corner of the province near Carievale adjacent to the North Dakota boundary, and also between the Parkman field and the Manitoba boundary. The large development drilling programs, brought about by a strong demand for Saskatchewan crude, were carried out in comparatively few fields, mainly Dodsland, Parkman, Hastings, Weyburn, Midale and Steelman. Well yields in Saskatchewan average less than those of Alberta oil wells, but their location nearer to eastern markets and the lower cost of drilling Saskatchewan's shallower wells help offset this factor. Saskatchewan production of crude oil in 1961 reached a record high of 56,000,000 bbl., representing an 8-p.c. increase over the 1960 output. Natural gas net output decreased slightly to 35,000,000 Mcf.

Manitoba.—Only 28 wells were drilled in Manitoba in 1961 compared with 67 in 1960, and only one created much interest—a well near Pierson in the southwest corner of the province. Later investigation showed such high water production that that interest soon subsided. Production of crude oil in Manitoba has been declining each year since the peak year of 1957. In 1961, output totalled 4,485,000 bbl., 6 p.c. less than in 1960. The province has no commercial production of natural gas.

Yukon and Northwest Territories.—One important gas discovery, in the Netla Arrowhead River well located between the Liard River and Trout Lake, was made in 1961. This yielded a high flow of gas from a section in the Devonian Slave Point formation. At the year-end, a well to a depth of 14,000 feet was being drilled on Melville Island to test one of the numerous structures in the potentially oil-bearing Palaeozoic rocks; by the end of 1961 it had reached a depth in excess of 10,000 feet. This was the first well to be drilled in the Arctic islands in the search for oil and gas. For the Territories as a whole, there was a nearly 50-p.c. decrease in the number of wells drilled following the 33-well peak reached in 1960.

Eastern Canada.—Exploration and development in Quebec was carried on more actively than heretofore in 1961, because of a drilling program relative to a natural gas reservoir on the north shore of the St. Lawrence River near Trois Rivières. The gas pool is located at a depth of less than 200 feet in unconsolidated sand beneath a clay capping, but the reserves are small compared with those of typical gas pools in Western Canada. In Ontario, drilling was carried on, as in previous years, along the north shore of Lake Erie and also on a pinnacle reef belt south of Goderich around the southeast corner of Lake Huron.

Petroleum Refining and Marketing.—Petroleum refining throughput capacity was expanded only slightly in 1961. At the beginning of the year, capacity was 950,260 bbl. per day. In November, the new 8,500-bbl.-per-day plant of Golden Eagle Refining Company of Canada, Limited went on stream near St. John's, Nfld., to become the province's first oil refinery. The plant of Pacific Petroleum Ltd. at Taylor in northeastern British Columbia was expanded to a capacity of 3,500 bbl. per day, although operations were suspended at the company's 2,800-bbl.-per-day plant at Dawson Creek. The small refinery of Anglo American Exploration Limited at Hartell, Alta., was closed down after 22 years of operation at its Turner Valley site. The Regina refinery of Consumer's Co-operative Refineries Limited was expanded from 16,000 to 22,500 bbl. per day. Construction of new refinery facilities during 1962 and 1963 will increase refinery capacity by at least 56,000 bbl. per day in Ontario, 13,500 in Nova Scotia, and 3,000 in Manitoba. The expanded capacity in Ontario will increase the use of Canadian crude oil in Eastern Canada. The rate of growth of the petroleum refining industry from 1941 to 1961 is indicated by Table 2.

2.—Petroleum Refining Throughput Capacity, by Region, as at Dec. 31, 1941, 1951 and 1961

Region	1941		1951		1961	
	bbl. per day	p.c.	bbl. per day	p.c.	bbl. per day	p.c.
Atlantic Provinces.....	34,250	14.7	22,300	5.3	105,300	11.0
Quebec.....	67,000	28.8	160,000	38.0	297,000	30.9
Ontario.....	68,000	29.3	79,400	18.8	260,820	27.2
Prairie Provinces and Northwest Territories.....	38,540	16.6	131,000	31.1	198,640	20.7
British Columbia.....	24,500	10.6	28,850	6.8	98,700	10.2
Canada.....	232,290	100.0	421,550	100.0	960,460	100.0

Consumption of Canadian crude oil and natural gas liquids by Canadian refineries in 1961 averaged 427,000 bbl. per day. Although output and consumption increased by a substantial margin in 1961, Canadian refineries used the same proportion of domestic production as in 1960—54 p.c. Much of the increase in output of crude petroleum was attributable to a large increase in exports to the United States, where refineries took an average of 185,000 bbl. per day of Canadian crude oil and natural gas liquids, 61 p.c. more than in 1960. About one-half of the exports was delivered to three refineries in the Puget Sound area of the Pacific Coast and the remainder was sold in the United States Great Lakes region. In addition, Canada exported a small amount of refined petroleum products, averaging 5,000 bbl. per day. Foreign sources supplied 366,000 bbl. per day to Canadian refineries, or 46 p.c. of the average daily receipts of 793,000 bbl. The Atlantic Provinces and Quebec continued to use only foreign crude, mainly from Venezuela and the Middle East. The amount of foreign crude delivered to Ontario diminished by 30 p.c., averaging 7,000 bbl. per day, and by the final two months of the year crude imports into the province ceased altogether. This was the result of the national oil policy, and consumption of Canadian crude in Ontario increased by 24,000 bbl. per day to 221,000 bbl. per day. One effect of this increased use of domestic crude in Ontario was a reduction in the amount of refined petroleum products entering Ontario from Quebec—products which are derived from foreign crude oil.

**3.—Domestic and Foreign Crude Oil Received at Canadian Refineries,
by Region, 1941, 1951 and 1961**

Region	1941		1951		1961	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
	bbl. per day	bbl. per day	bbl. per day	bbl. per day	bbl. per day	bbl. per day
Quebec and Maritimes.....	—	62,299	—	161,794	—	358,723
Ontario.....	435	49,754	37,959	43,680	220,578	7,000
Prairie Provinces and Northwest Territories.....	26,168	541	91,317	248	140,170	—
British Columbia.....	—	15,019	—	22,058	66,439	—
Canada.....	26,603	127,613	129,276	227,780	427,187	365,723

Natural Gas Processing and Marketing.—Natural gases from Canadian gas fields vary from sweet dry gases to wet sour gases. They are usually processed in the field at natural gas processing plants, the degree of complexity of the plant depending on the composition of the gas. Canada had 66 such plants at the end of 1961, seven of which were built during the year. Two small plants of the comparatively simple dry-desiccant type were constructed in southwestern Ontario to process sweet gas. Several much larger, more complex plants were built in Alberta to process the sour wet gas derived from Mississippian strata. An example of this type of plant is a new plant near Calgary which has a throughput capacity of 125,000 Mcf. of gas per day and, in addition, derives large quantities of condensate and sulphur from the gas. Also completed by the end of the year was an expansion of a plant in the Carstairs area to 200,000 Mcf. a day. Several of the large new wet-gas plants will be supplying gas to the recently completed Alberta-California gas pipeline.

The first full year of operation of the Trans-Canada Pipe Lines Limited pipeline lateral from Emerson in Manitoba to the United States contributed considerably to Canada's increasing natural gas exports. Exports totalled 168,800,000 Mcf., 59,100,000 Mcf. of which went through the Trans-Canada lateral. The largest exporter was West-coast Transmission Company Limited which moved 84,900,000 Mcf. across the British Columbia-United States boundary. Gas started to flow through the Alberta-California gas pipeline in December 1961.

Ontario imports moderate quantities of natural gas from the United States, and in 1961 received 5,580,000 Mcf., nearly the same as in 1960. In the Canadian market, where total natural gas sales were 358,550,000 Mcf., Alberta remained the largest consumer with sales of 137,560,000 Mcf., 38.4 p.c. of total sales in Canada. Ontario has been gaining rapidly in the provincial distribution of total sales; in 1961 Ontario sales were 119,620,000 Mcf., 33.4 p.c. of the Canadian market. Sales in other provinces, on a percentage basis, were: Saskatchewan 9.5 p.c., British Columbia 7.5 p.c., Quebec 6.9 p.c., and Manitoba 4.3 p.c. New Brunswick has been a very minor producer of natural gas for many years and consumes much less than 1 p.c. of total sales.

Subsection 4.—Coal*

High production and transportation costs and the ever-increasing competition from oil and gas continued to have a depressing effect on Canada's coal mining industry in 1960 despite a small increase in production. An increase in exports took up part of the production increase and continued assistance by governments made it possible for Canadian coals to compete with other fuels in markets where, because of unfavourable geographical locations with respect to energy markets, such competition would not be possible. Nevertheless, the over-all consumption of coal was down more than 5 p.c.

Mechanization of the mines continued to increase in all areas in Canada in an effort to decrease production costs. Of particular significance are the full-scale trials with fully mechanized retreating long walls in Nova Scotia where normally extraction is by long wall advancing; the use of a caterpillar-mounted Borecut mining machine of Canadian design and manufacture and the 3 JCM Joy Room Miner in mining operations under generally unfavourable conditions for mechanization in Western Canada; and the continued experimentation with long wall extraction using a mechanical miner in the thin coal seam of the Minto coalfield of New Brunswick. For strip-mining, larger size earth-moving equipment was put in use and orders placed for draglines with 33 cu. yard buckets which are expected to substantially increase the depth at which profitable strip-mining can be carried on. The increase in mine mechanization with relative absence of selective mining, combined with the tendency of the machines to produce greater quantities of fine coal, increased the problems associated with quality control at the surface.

There was little or no increase in coal cleaning facilities in Eastern Canada. However more extensive use of present cleaning equipment, employment of thermal drying, and increased coal sampling and analyses resulted in greater customer satisfaction with coal from mines of Eastern Canada. In Western Canada, particularly in the Crowsnest area, fine coal cleaning gained particular attention resulting in upgrading of these coals to meet demands of the export market for coking coals.

In 1959, the Federal Government appointed a Royal Commission on Coal to investigate the industry's problems and make recommendations for their solution. The Commission conducted hearings across Canada and published its findings in September 1960. One of the recommendations of the Commission was that subsidies be paid, with certain stipulations, directly to coal mine operators instead of to the carrier in the form of freight subventions, as at present. Recommendations for increased research in production, utilization and marketing were also contained in the report.

Assistance to the coal industry was given by the federal and provincial governments through research programs in co-operation with industrial organizations. The problem of fine coal production and disposal received much attention and research was directed toward improved mining methods and beneficiation by cleaning and briquetting. Development of new and modified combustion equipment was continued with greater efficiency in the use of Canadian coals in view. Through continued programs of sampling and analysis of marketable coal, the governments aided the industry in their efforts to maintain quality control. Surveys were made of the coking properties of coals in relation to their preparation for export markets and their use in prospective steel industries.

*This review covers the year 1960.

The Dominion Coal Board, through financial assistance in the acquisition of new equipment and subventions on coal transportation and on coal used in the thermo-electric power plants in the Maritimes, continued to aid the coal industry. Over 27 p.c. of the coal production was moved with the aid of subvention payments, some 260,000 tons more than in 1959. The increase was mainly on subvention-covered exports of British Columbia and Alberta coking coals to Japan. The value of the subvention assistance was more than \$16,300,000. Through the Atlantic Provinces Power Development Act, which indirectly aids the marketing of coal, the Federal Government made payments totalling about \$1,750,000.

Production of coal in Canada in 1960 increased by 3.6 p.c. to a little more than 11,000,000 tons, the first significant increase in ten years. The average value was \$6.781 per ton or 29.59 cents per million Btu. The number of man-days increased from 2,481,498 in 1959 to 2,552,127 in 1960, about 2.8 p.c. Nova Scotia, the major coal-producing province, was most affected by the better coal marketing. The increase in coal mine employment in that province was almost 6 p.c. The major part (66.3 p.c.) of the coal produced in Canada was bituminous, valued at \$8.779 per ton or 33.66 cents per million Btu at the mine. Subbituminous and lignite accounted for 14.0 p.c. and 19.7 p.c., respectively, of the production. The average value of subbituminous coal was \$4.383 per ton, this being 23.43 cents per million Btu, and the value of lignite was \$1.766 per ton at 11.43 cents per million Btu. Bituminous coal production increased by 5.1 p.c. and lignite by 11.5 p.c., while subbituminous coal production decreased 11.2 p.c. The proportion of strip-mined coal continued to increase, about 39 p.c. of the output being won by stripping methods in 1960. The output per man-day of coal from strip-mines averaged 15.071 tons in 1960 compared with 2.967 tons for underground mines. This represents an increase of 1.284 tons for strip-mines and a decrease of 0.036 ton for underground mines. The over-all output per man-day increased from 4.282 to 4.314 tons.

The slow-up in the expansion of the Canadian economy continued in 1960 and, combined with increasing competition from oil and gas in most of the markets formerly dominated by coal, resulted in a further decrease of 5.3 p.c. in coal consumption. Some 23,200,000 tons of coal, of which less than 10,000,000 tons was Canadian produced, were consumed in 1960. The railways, which ten years ago provided an annual market for 10,500,000 tons of coal, in 1960 used only 77,000 tons. The consumption of coal for household and commercial-building heating was more than 1,000,000 tons below the consumption in the previous year. The 9,900,000 tons used by industrial consumers, including thermo-electric power plants, represented a decrease of 1 p.c. in this market; about 50 p.c. of this coal was Canadian. The consumption of coal in the production of coke decreased by more than 6 p.c. to 5,300,000 tons, only 16 p.c. of which was Canadian. The quantity of coal imported in 1960 decreased by 9.0 p.c.; imports of anthracite coal declined 19.1 p.c. and imports of bituminous coal from the United States, which makes up the bulk of coal imports, decreased 3.2 p.c. Exports of Canadian coal amounted to 852,921 tons compared with 473,768 tons in 1959. Most of it went to the United States and Japan for blending in the manufacture of metallurgical coke.

Both the production and the consumption of coal briquettes decreased greatly in 1960. In Saskatchewan, the output remained virtually the same owing to the development of a special charcoal-type briquette from lignite. In Alberta and British Columbia the output of briquettes (exclusive of 1,216 tons of char briquettes produced in Alberta) fell, respectively, 55.5 p.c. and 95.5 p.c. below the 1959 level.

Coal is produced in five provinces and a large share of the market for the industry is concentrated in Central Canada where there is no coal production. A small amount of coal is also mined in the Yukon Territory. A review of the provincial activities of the industry follows.

Nova Scotia.—Nova Scotia, with a coal production of 4,570,240 tons, accounted for 41.5 p.c. of the Canadian coal output in 1960; production was 4.1 p.c. higher than in 1959. The coal is high volatile bituminous coking coal mined in the Sydney, Cumberland and

Pictou areas, and some non-coking bituminous coal in the St. Rose, Inverness and Port Hood areas on the west coast of Cape Breton Island. The over-all value at the mines decreased to \$9.842 a ton from \$9.957 a ton in 1959, the former representing 37.34 cents per million Btu.

All Nova Scotia coal comes from underground mines, most of which are mechanized. Coal-washing plants are operated at two of the collieries preparing about a third of the province's coal production. The output per man-day was 2.67 tons in 1960 compared with 2.72 tons in 1959. Much of the output is used locally for industrial steam-raising, electric power production, household and commercial heating and the manufacture of metallurgical coke. In 1960 about 52 p.c. of the production was shipped to other provinces, mainly Central Canada. Subvention payments were made by the Dominion Coal Board on the movement of 2,048,073 tons.

New Brunswick.—New Brunswick's production, of which 84.7 p.c. was strip-mined, was entirely high volatile bituminous coal mainly from the Minto area, with a small amount from the Coal Creek area. Production in 1960 again exceeded 1,000,000 tons, up 2.4 p.c. from the 1,003,387 tons produced in 1959, and represented about 9.3 p.c. of Canada's output. Average output per man-day from strip-mines was 6.19 tons and from underground mines 1.768 tons; average value at the mines was \$8.426 a ton, amounting to 35.14 cents per million Btu.

Modern coal-washing plants, equipped with Baum-type jigs are operated at two of the strip-mining operations. One of these plants also cleans fine coal in a feldspar jig and has facilities for recovery and upgrading of the slurry. The two plants enable the beneficiation of about one-half of New Brunswick's coal output. A large part of the production is used locally for heating, electric power generation and processing; about 15 p.c. is shipped to Central Canada and 7 p.c. exported to the United States. Government subventions aided in the moving of 173,063 tons in 1960.

Saskatchewan.—Production of coal in Saskatchewan was entirely lignite, mined by stripping in the Bienfait, Estevan and Roche Percee areas in the Souris Valley district, and amounted to 2,170,797 tons in 1960, an increase over the 1,947,380 tons produced in 1959. The 1960 output represented about 19.7 p.c. of the total Canadian production. It was valued at the mine at an average of \$1.766 per ton and, at 11.42 cents per million Btu, was the cheapest source of coal in Canada. The average output per man-day was 33.86 tons. About 51 p.c. of the output went to Manitoba and Ontario for industrial, commercial and household use. Subvention assistance was given on 79,377 tons.

Alberta.—Several types of coals are produced in Alberta ranging from semi-anthracite, mined in the Cascade area, to subbituminous. Coking bituminous coals are present in the Inner Foothills Belt but, because of market conditions, these are at present mined only in the Cascade and Crownsnest areas. Nearly all of the output of these coals is beneficiated in wet or dry cleaning plants. The coal is used for industrial steam-raising and for commercial and household heating. Increasing quantities of coking coal are exported to the United States and Japan for use in the metallurgical industries. In several areas of the foothills, lower rank bituminous non-coking coals are available but production is mainly confined to the Lethbridge area. The other coal areas produce subbituminous coals used mostly for household and commercial heating and thermal power generation.

Alberta's coal production in 1960 decreased 6.2 p.c. from 1959 to 2,391,699 tons, this being about 21.7 p.c. of the nation's coal output. The declining trend in this province has been practically uninterrupted since 1949 (when about 8,600,000 tons were produced) owing to the development of the oil and gas resources. Subbituminous coal accounted for over 64 p.c. of the 1960 output and production of this type decreased 11.2 p.c.; the output of bituminous coal increased 4.3 p.c. to 851,122 tons. Of the total coal production, 48.3 p.c. was won by stripping, the average output per man-day being 15.128 tons compared with 4.326 tons for the underground mines. Bituminous coal was valued at \$5.596

per ton or 22.64 cents per million Btu at the mine, and the average value of subbituminous coal was \$1.383 per ton or 23.43 cents per million Btu. About 1.7 p.c. of the production was shipped to Central Canada, over 8 p.c. (mainly subbituminous) to Manitoba and 15 p.c. to both Saskatchewan and British Columbia. Subvention assistance from the Dominion Coal Board applied on the movement of 685,797 tons of Alberta and British Columbia coal.

The output of briquettes, which are made from the semi-anthracite and low volatile bituminous coals of the Cascade area and the medium volatile coals of the Crowsnest area, declined sharply from 99,499 tons in 1959 to 45,453 tons in 1960.

British Columbia and Yukon.—In British Columbia, coal was mined on Vancouver Island and in the Crowsnest Pass (East Kootenay) District with a small output from mines in the inland district. These coals range from high to low volatile bituminous coking coals. Production increased 15.8 p.c. to 843,868 tons, about 7.7 p.c. of the country's output, with an average value of \$6.617 per ton or 23.94 cents per million Btu. Strip-mines accounted for 9.8 p.c. of the output. The average output per man-day was 29.195 tons for strip-mines and 4.218 tons for underground mines.

Beneficiation facilities located at Union Bay (Vancouver Island), Coleman and Michel (East Kootenay) process nearly all of British Columbia's coal production. Of the total production, 17 p.c. was shipped to Manitoba, 1.5 p.c. to Alberta and negligible quantities to Ontario and Saskatchewan. About 78 p.c. of the output was coking coal from the Crowsnest area and 272,729 tons were exported to Japan for metallurgical use. Production of briquettes declined sharply, production being less than 5 p.c. that of 1959.

In the Yukon Territory, 6,470 tons of coal were mined from a single underground mine with an average output per man-day of 3.306 tons. This coal was valued at \$15.016 per ton or 65.57 cents per million Btu.

Section 2.—Government Aid to the Mineral Industry

Subsection 1.—Federal Government Aid

The Department of Mines and Technical Surveys.*—The federal Department of Mines and Technical Surveys came into being on Jan. 20, 1950, in the reorganization of the former Department of Mines and Resources. The Department has six branches—Surveys and Mapping Branch, Geological Survey of Canada, Mines Branch, Dominion Observatories, Geographical Branch and, established effective Apr. 1, 1962, the Marine Sciences Branch. The Department's functions include the administration of the Emergency Gold Mining Assistance Act, the Explosives Act and the Canada Lands Act.

Surveys and Mapping Branch.—The Branch provides the base maps required for use in the development of Canada's natural resources, is responsible for legal surveys of federal lands and provides a national system of levelling and precision surveys for use as geodetic control by federal, provincial and private agencies.

The Geodetic Survey provides the original surveys that form the framework or basic control for mapping throughout Canada and for engineering and surveying projects related to natural resources development. Survey stations are established at fairly regular intervals across Canada and are marked by permanent monuments whose latitudes, longitudes and elevations above mean sea level are determined with a high degree of accuracy.

The Topographical Survey provides topographical maps that show all significant natural and artificial features fundamental to the study and economic development of

* Revised, under the direction of the Deputy Minister, in the Editorial and Information Division, Department of Mines and Technical Surveys, Ottawa.

mineral and other natural resources. The Field Survey Section is responsible for the field surveys that provide ground control for mapping from aerial photographs, and the Air Surveys Section plots and produces maps from these aerial photographs. The National Air Photographic Library indexes, preserves and distributes prints of all aerial photography done by or for the Federal Government.

The Legal Surveys and Aeronautical Charts Division makes and records legal surveys of federal Crown lands in the Yukon and Northwest Territories, the National Parks and Indian lands and reserves. This Division prepares aeronautical charts and electoral maps and prepares and distributes flight manuals.

The Map Compilation and Reproduction Division prepares, drafts and reproduces maps, charts and plans for lithographic printing in multi-colour. The work includes the preparation and photo-reproduction of air chart bases, the reproduction and printing of air information for aeronautical charts, the preparation and printing of topographic maps and the reproduction and printing of hydrographic charts.

Marine Sciences Branch.—On Apr. 1, 1962, the Department established a Marine Sciences Branch to combine hydrographic surveys and research in oceanography, marine geology and the geophysical sciences of the seas. The function of the new Branch is to carry out hydrographic and other oceanic surveys and to conduct oceanographic research in the nearby oceans, in Canada's coastal and inland waters, and on the underlying seabeds for the threefold purpose of assisting navigation, with particular reference to Arctic waters; of ascertaining the resource potential of the country's continental shelf; and of undertaking the extensive program of oceanographic research required for military and civilian purposes. The resultant information will also greatly assist the commercial fisheries.

The new Branch takes in the existing departmental personnel and facilities now engaged in hydrography and oceanography, and provides for the necessary expansion to meet new requirements. This will involve additional personnel, modern laboratory accommodation and ancillary facilities, and research ships. It comprises the Canadian Hydrographic Service, the Division of Oceanographic Research, the new Bedford Institute of Oceanography, and a new Ships Division. Headquarters of the Branch is in Ottawa and hydrographic and oceanographic activity on the Atlantic and Pacific Coasts will be centred in oceanographic institutes on those Coasts. On the Atlantic Coast, the new \$4,500,000 Bedford Institute of Oceanography is scheduled for completion in mid-1962. Oceanographic research in the Arctic will also be carried on from this centre. A similar centre is planned for the Pacific Coast about 1965. Meanwhile, functions on the West Coast are centred in the present hydrographic establishment in Victoria, B.C. The Inland Waters Section of the Canadian Hydrographic Service works out of Ottawa.

The Bedford Institute consists of a modern office and laboratory building, equipment and ships' depot, machine woodworking and electrical shops for minor repairs to the ships and the construction of special equipment, and ships' berthing facilities which comprise a quay wall and a jetty. The docks are planned to accommodate ten ships.

The Marine Sciences Branch will be serviced by a fleet of multi-purpose ships which are designed to be used for either survey or research purposes. The ships are being provided under a long-range shipbuilding program. For the East Coast, three ships are in design or under construction and one ship, the *Marxwell*, was launched in 1961. The largest of the group, the *Hudson*, is expected to be commissioned in 1963. It will have a cruising range of 15,000 miles and has been designed for oceanographic studies anywhere in the world.

The Canadian Hydrographic Service is responsible for the charting of the coastal and inland navigable waters of Canada, the analyses of tides and tidal current phenomena and the investigation of water-surface elevations of the St. Lawrence-Great Lakes waterway. The resultant data are published in the form of official navigation charts, volumes of Sailing Directions, Tide Tables and Water Level Bulletins.

The Division of Oceanographic Research was formed in 1960 to take charge of the extensive program of oceanographic research assigned to the Department of Mines and Technical Surveys by the Canadian Committee on Oceanography, an interdepartmental body co-ordinating all oceanographic research in Canada. The Division is responsible for meeting the increasing federal needs for oceanographic information in waters of Canadian interest, mainly for defence, transport, and resource assessment purposes. This includes an intensive study of oceanography in the Arctic and the extension of Canadian studies farther out to sea to examine the special problems of the deep ocean. In addition, the Division will contribute to international oceanographic studies in which Canada will become involved.

Geological Survey of Canada.—The primary function of the Geological Survey is to obtain information on the geology of Canada that will be of assistance in the search for and development of mineral deposits. The results of its activities also provide a basis for the appraisal and conservation of Canada's mineral resources generally (including water supplies), for soil surveys and for the solution of geological problems that frequently arise in construction projects. Reports issued by the Geological Survey include: memoirs with fairly complete descriptive accounts of the geology of particular areas, usually accompanied by geological maps; bulletins dealing with problems rather than areas; papers issued as soon as possible after the close of the field season, treating separately of each area and summarizing the information acquired; and the Economic Geology Series dealing in a comprehensive way with mineral deposits of a particular type. Information circulars, issued in advance of the more detailed reports, contain data of immediate interest to prospectors. Coloured geological maps are issued on various scales from one inch equalling a few hundred feet to one inch equalling eight or more miles, the common standard scales being one inch to one mile and one inch to four miles. Preliminary maps showing the geology are issued shortly after the field season ends for those areas where the search for metals or minerals is active. Metallogenic maps show the Canada-wide distribution of known occurrences of particular metals classified according to the type of deposit.

The Regional Geology Division is responsible for mapping and studying the rocks of the eastern and western segments of the Precambrian shield, and the Appalachian and Cordilleran regions.

The Economic Geology Division investigates the geology of specific mineral deposits, applies and develops geochemical techniques, and maps and studies unconsolidated deposits that mantle much of the country and, in several provinces, carries out surveys of groundwater resources.

The Fuels and Stratigraphic Geology Division includes stratigraphic palaeontology, the geology of fuels (oil, natural gas and coal), subsurface geology, and research on coal. Its function is to establish the character, age, thickness and correlation of both exposed and concealed sedimentary formations and to map the distribution and structure of these formations with the object of determining the economic possibilities of prospective oil, gas and coal bearing areas of Canada.

The Petrological Sciences Division makes mineralogical, petrological, and isotopic studies of Canadian mineral deposits and associated rocks. Laboratories provide mineral identifications for the public, supply officers of the Survey with mineralogical and geochronological data, and permit research on the genesis of ores, fuels and rocks. Systematic mineral collections are maintained and mineral and rock collections are prepared for use by prospectors and educational institutions.

The Geophysics Division gathers, compiles and interprets geophysical data relating to the geology of Canada. Fundamental research is carried out in some phases of geophysical work.

Mines Branch.—Investigations undertaken in Branch laboratories cover a wide range of technical projects of importance to the advance of fundamental research; to the processing of ores, industrial minerals and fuels on a commercial scale; and to the theory and practice of physical metallurgy.

The Mineral Processing Division is concerned primarily with the development of economical methods of mineral dressing and with research toward the improvement of present processing techniques. It is equipped to conduct laboratory and pilot-plant studies involving a variety of procedures: crushing, grinding, gravity concentration, sink and float (heavy media) separation, magnetic and electrostatic concentration, amalgamation, cyanidation, flotation and roasting.

The Extraction Metallurgy Division seeks the development of better hydrometallurgical and pyrometallurgical processes for the treatment of ores and the solution to specific technical problems in this field. A substantial part of its efforts was devoted recently to ores of uranium, iron and other elements and to corrosion problems encountered in certain industrial and governmental projects. The Division accepts samples from operating mines or those under development.

The Mineral Sciences Division applies the principles of chemistry and physics to fundamental and long-term problems in the field of mineral technology and related aspects of metallurgy. It deals with ores, mineral and metal products, inorganic crystalline materials and radioactive substances and its work ranges from relatively simple routine determinations to complex research problems requiring the most modern techniques and equipment.

The Fuels and Mining Practice Division studies the properties of fossil fuels in Canada to determine the most efficient means of utilizing fuel resources. Most of the work on coal is directed to investigations on the immediate problems of the industry and to engineering studies on the most efficient use of coal in combustion applications with particular reference to thermally generated electric power. Such investigations include work on the evaluation of cleaning performance and the beneficiation of coal fines that are difficult to market, the uses of coal in the metallurgical industries and the study of stress phenomena in mining. Research in petroleum is directed mainly to problems in the refining of heavy crudes and high-sulphur bitumens, and to the chemical evaluation of oils and bituminous substances for classification and genetic purposes.

The Physical Metallurgy Division aids the metal industries through the development of new alloys, new manufacturing techniques and new applications and in activities aimed toward improving present practices in metal fabrication. It also conducts fundamental research on the properties and behaviour of metals. The Division serves the Department of National Defence by extensive research and investigative work, concerned broadly with the development of defence materials and prototype equipment and with the metallurgical problems of that Department. It is also operative in the nuclear metallurgy field.

Dominion Observatories.—The two main units of the Dominion Observatories are the Dominion Observatory at Ottawa, Ont., and the Dominion Astrophysical Observatory at Victoria, B.C. Permanent magnetic observatories are maintained at Ottawa and Agincourt, Ont., Meanook, Alta., Victoria, B.C., and at Alert, Mould Bay, Resolute Bay and Baker Lake, N.W.T. Seismic stations for recording earthquakes are operated

at Alert, Mould Bay and Resolute, N.W.T., Victoria and Penticton, B.C., Banff, Alta., Saskatoon, Sask., Ottawa, Ont., Seven Falls and Shawinigan, Que., and Halifax, N.S.

The Dominion Observatory at Ottawa is responsible for the time service of Canada which involves nightly astronomical observations of star positions and radio broadcast services for distributing accurate time to all parts of Canada. Other astronomical activities centred at Ottawa include upper atmospheric studies by means of meteor observations, studies of the sun and its effect on earthly conditions and mathematical studies of the atmospheres of the sun and stars. The geophysical work, also administered from Ottawa, includes the magnetic survey of Canada with emphasis on aids to air and sea navigation, as well as field and observatory work of interest to the geophysical prospector. The methods of seismology are employed to study important aspects of the earth's crust in Canada and to assist in world-wide investigations of the earth's interior. Gravity observations are carried on throughout Canada with a generally similar purpose, special attention being paid to methods of locating mineral deposits.

The Dominion Astrophysical Observatory at Victoria, B.C., is devoted to fundamental research into the physical characteristics of the sun, stars, planets and the material of interstellar space. Its 73-inch reflecting telescope is one of the largest in the world and through its use many important contributions have been made to astronomical knowledge. A new radio telescope at Penticton, B.C., has given the Branch a valuable instrument for research in radio astronomy.

Geographical Branch.—The function of the Branch is to organize and make available all the geographical data on Canada that might be of use in promoting the country's economic, commercial and social welfare. The work is of two kinds—the compilation of geographical material of national significance, and geographical surveys in the field. Land surface conditions, types of vegetation and the structure of towns and cities are typical subjects of investigation. The Branch also administers the Canadian Board on Geographical Names.

Mineral Resources Division.—The Division provides a mineral information service that is freely used by government departments, mining and allied industries and others interested in mining or its significance in the Canadian economy. A mineral resources index inventory is maintained of all known occurrences and of mines, both active and potential. The Division makes economic studies of different phases of the mining industry. It administers the Emergency Gold Mining Assistance Act, prepares reports on request to aid in the administration of such matters as tax exemptions on new mining properties, and prepares reports and briefs on general legislation, taxation and tariff matters connected with the mineral industry. The Division is widely known for its publications, among the most valuable of which are the annual reviews of production, marketing and other matters concerning 64 minerals. It issues more detailed economic studies of metals and fuels of current interest and prepares annual lists of metallurgical works, metal and industrial mineral mines, milling plants, coal mines and petroleum refineries. Also published are special monographs on mining laws, taxation and subjects of particular interest to the mineral industry.

The Dominion Coal Board.*—The Board was established by the Dominion Coal Board Act (RSC 1952, c. 86) which was proclaimed on Oct. 21, 1947. By this Act the Board was constituted a department of government to advise on all matters relating to the production, importation, distribution and use of coal in Canada. The Board is also charged with the responsibility of administering, in accordance with regulations of the Governor in Council, any coal subventions or subsidies voted by Parliament.

* Revised under the direction of C. L. O'Brien, Chairman of the Dominion Coal Board.

The Board is empowered to undertake research and investigations with respect to:—

- (1) the systems and methods of mining coal;
- (2) the problems and techniques of marketing and distributing coal;
- (3) the physical and chemical characteristics of coal produced in Canada with a view to developing new uses therefor;
- (4) the position of coal in relation to other forms of fuel or energy available for use in Canada;
- (5) the cost of production and distribution of coal and the accounting methods adopted or used by persons dealing in coal;
- (6) the co-ordination of the activities of government departments relating to coal; and
- (7) such other matters as the Minister may request or as the Board may deem necessary for carrying out any of the provisions or purposes of the Act.

In addition, the Dominion Coal Board Act provides authority in the event of a national fuel emergency to ensure that adequate supplies of fuel are made available to meet Canadian requirements.

The Act authorizes a Board membership of seven, including the chairman. The latter is the Chief Executive Officer, has the status of a Deputy Minister, spends full time on the Board's business, receives a salary and is in charge of a civil service staff. The other members, men of long experience and expert knowledge of aspects and regions of the Canadian coal industry, receive *per diem* payments and travelling expenses while attending Board meetings or while otherwise officially engaged on Board business.

In general, the Board and its staff constitute a central agency through which representations on coal matters are made to the Government from any sector of the industry or the public. Conducting a continuous study of developments and problems within the industry, exchanging information with provincial authorities concerned with coal and with national authorities and agencies in other countries and maintaining the most complete files of Canadian coal information in existence, the Board makes recommendations to the Government and reports to Parliament through the Minister of Mines and Technical Surveys. In view of the growing impact of oil and natural gas on the markets for Canadian coal, the Board and its staff have intensified the study of the relation of the competing sources of energy and of possible new outlets for the solid fuel.

Since its inception, the Board has worked toward the co-ordination of the activities, relating to coal, of various government departments, agencies and other bodies. Its own responsibilities in research on the mining and utilization of coal have been carried out mainly by delegation to the Fuels and Mining Practice Division, Mines Branch, Department of Mines and Technical Surveys. On occasion, the Board has recommended or commissioned specialized types of research by experts outside the government service—for example, the studies resulting in the Christie Reports which became influences leading to the enactment of the Atlantic Provinces Power Development Act (SC 1958, c. 25) and the establishment of a power grid in the Maritimes. As a contribution to the co-ordination of coal research and to the dissemination to the industry of technical information resulting from research, the Board initiated and originally sponsored the now self-sustaining annual Dominion-Provincial Coal Research Conferences. In the field of coal statistics, the Board has a long-standing co-operative arrangement with the Dominion Bureau of Statistics.

Government purchases of fuel, which constitute an important outlet for coal, claim a part of the time of the Board's staff in an advisory capacity. Advice on fuel matters is also continuously available to all government departments and agencies. A senior official of the Coal Board is chairman of the Interdepartmental Fuel Committee, which advises on the supply, purchase and utilization of fuel for the Department of National Defence, and of the Dominion Fuel Committee, which is organized along similar lines as an advisory body to other government departments.

The subvention assistance on the movement of Canadian coals, which the Board administers, is authorized from year to year by votes of moneys by Parliament; payments are in accordance with Regulations established by Order in Council. This assistance, which has been provided in varying degrees for the past 30 years, was designed to further

the marketing of Canadian coals by equalizing as far as possible the laid-down costs of Canadian coals with imported coals. During the year ended Mar. 31, 1961, a total of 2,832,811 tons of coal was shipped under subvention and \$15,406,057 was paid in assistance. Costs and conditions of the coal industry being subject to variations, the Board must review from time to time the rates of subvention and the areas where the assistance is required.

Coal subventions of another type, based on the Btu content of coal used in thermal electric power production, were authorized in January 1958 by the provisions of the Atlantic Provinces Power Development Act. The Dominion Coal Board was designated as the Government of Canada's administrative agency for subvention matters in agreements made with the provinces under this Act.

As agent to the Minister of Mines and Technical Surveys, the Board receives applications and administers loans under the Coal Production Assistance Act (RSC 1952, c. 173, as amended by SC 1958, c. 36, and SC 1959, c. 39). The Board also administers payments under the Canadian Coal Equality Act (RSC 1952, c. 34), which provides a subsidy on Canadian coal used in the manufacture of coke for metallurgical purposes. In the year ended Mar. 31, 1961, payments under this Act, totalling \$314,477, were made on 635,308 tons of coal.

Subsection 2.—Provincial Government Aid*

Newfoundland.—The Newfoundland Government, through its Mines Branch, provides several valuable services to those interested in prospecting and mining. It publishes, for sale at nominal cost, geological reports, geophysical maps and compilations of general data pertaining to specific areas and makes available, from unclassified files, various other information to interested parties. It identifies specimens sent in from Newfoundland and Labrador and assays by chemical means those that appear to have some mineral content. If good specimens from a known area warrant further investigation, a geologist from the Department of Mines, Agriculture and Resources is available to visit the locality and give advice. Prospecting and mining permits are issued by the Department and claims are registered.

Nova Scotia.—Under the provisions of the Mines Act (RSNS 1954, c. 179), the Government of Nova Scotia may assist a mining company or operator in the sinking of shafts, slopes, deeps and winzes and the driving of adits, tunnels, crosscuts, raises and levels. This assistance may take the form of work performed under contract, the payment of bills for materials and labour, or the guarantee of bank loans. Any such work must be approved by the Department of Mines. The Government is also authorized to assist the mining industry to procure power on the most economical basis and may guarantee the Nova Scotia Power Commission against any loss of revenue incurred on account of capital investments made for that purpose. Mining machinery and equipment that may be used in searching for or testing and mining minerals may be made available through the Government. Such equipment is under the direct supervision of the Chief Mining Engineer.

The Government of Nova Scotia is also empowered to make any regulations considered necessary for increasing the output of coal. Such regulations cover the appropriation, on payment, of unworked coal lands, the operation of coal mines, and loans or guarantees for loans. Close co-operation is maintained with the Federal Government in carrying out federal regulations made to secure increased production and economical distribution of coal from the mines of the province.

New Brunswick.—The Mines Branch of the Department of Lands and Mines has five divisions. The *Mineral Lands Division* administers the disposition of Crown mineral

* Compiled from material supplied by the respective provincial governments.

rights including the issuing of prospecting licences, recording of mining claims, issuing of mining licences and leases and other matters pertaining thereto. Detailed and index claim maps are prepared for distribution. The *Mine Inspection and Engineering Division* administers the safety regulations governing operations under the Mining Act. All mines are regularly inspected, laboratory facilities are maintained and all equipment used in mines must be approved by the Division. The *Geological Division* carries on general and detailed geological mapping and investigation. Maps and reports are prepared for distribution, mineral and rock specimens are examined for prospectors and preliminary examinations of mineral prospects are made where requested and circumstances warrant. The *Mine Assessment Division* is responsible for the collection of mining taxes and royalties and the preparation of statistics on mineral production. The *Bathurst Division* serves as recording office for northeastern New Brunswick. In addition, claim maps as well as topographical, geological and aero-magnetic maps are available for perusal and distribution. The staff is prepared to provide information concerning the Mining Act and the use of various types of maps.

Quebec.—The Mining Act (RSQ 1941, c. 196) authorizes the Department of Natural Resources of the Province of Quebec to build, maintain and improve roads needed for mining development. Such work is done by contract under the supervision of departmental engineers. The Act gives the Department considerable latitude in this respect. Certain major roads have been built to new mining districts and completely paid for; on the other hand, if a particular property requires a branch road from an established highway the owner may be required to contribute a portion of the cost. To prevent the development of uncontrolled settlements in the vicinity of operating mines, the Department regulates the use of land and permits the establishment of well organized communities. The municipal organization of such communities is administered by the Department of Municipal Affairs.

The Department maintains well equipped laboratories for the benefit of prospectors, geologists, engineers and mine operators. The facilities include equipment for mineralogy, petrography, ore dressing, and analysis by wet or dry assay, spectrography or X-ray. Qualitative and mineralogical determinations are made free of charge but quantitative analyses are charged for according to a tariff schedule. The Mining Act provides free coupons to be used by prospectors in paying for such analyses.

The province has authorized the establishment of research laboratories and a pilot plant to assist mining and metallurgical enterprises in the processes and techniques of extracting, transforming and utilizing ores.

The Department undertakes geological mapping and inspection. The work is divided between two branches, one responsible for reconnaissance (areal) mapping, and the other for detailed mapping in mining districts and inspection of individual deposits or properties. Field parties are headed by geologists or mining engineers. The published reports on these investigations are distributed free upon request. During the field season about 55 parties are maintained in different sections of the province. Offices, in charge of resident geologists, are maintained in mining districts to collect, preserve and compile geological information disclosed by mining explorations and individual sheets of the compilations are made available to the public.

The Department employs inspectors whose duties include supervision of the observance of all regulations concerning the safety of workmen in operating mines. Three Mobile Mine Rescue Stations are operated and a mine rescue training program is conducted throughout the province.

In the field of education for prospectors, five-week courses are organized each year at Laval and Montreal Universities. University scholarships are granted each year to deserving undergraduate and postgraduate students in mining, geology and metallurgy, thus contributing to the training of qualified engineers for the benefit of the mining industry. Lectures are given to prospectors at different localities throughout the province.

Ontario.—The Ontario Department of Mines renders a multiplicity of services of direct assistance to the mining industry within the province, as briefly outlined below.

Mining Lands Branch.—This Branch handles all matters dealing with the recording of mining claims, assessment work, etc., and the preparation of title to mining lands. As a service to the mining public, individual township maps are prepared and kept up to date showing lands open for staking and recorded and patented claims therein. District Mining Recorders maintain offices at strategic locations throughout the province.

Geological Branch.—A continuing program of geological mapping and investigation is carried out by the geological staff of the Department. Detailed reports and geological maps of the areas studied are made available to the public. In many of the active areas of the province resident geologists are engaged to gather and make available to the public information concerning geological conditions, exploration and development within their respective districts. A geologist specializing in industrial minerals investigates methods of treatment and recovery of such minerals and compiles data on the uses, specifications and markets for such products. Collection and dissemination of information on ground-water resources is also a function of the Geological Branch. During the winter months, courses of instruction for prospectors are held in various centres throughout the province.

Laboratories Branch.—The Provincial Assay Office at Toronto carries out wet analyses and assays of metal and rock constituents on a custom fee basis and gives the same service free of charge to holders of valid assay coupons issued for the performance of assessment work on mining claims. The Timiskaming Testing Laboratories situated at Cobalt, in addition to performing fire assays and chemical analyses, operate a bulk sampling plant mainly to assist the producers of the area in the marketing of the cobalt-silver ores. A Cable Testing Laboratory, wherein all hoisting ropes in use at the mines are periodically tested, is operated under the supervision of the Inspection Branch.

Inspection Branch.—The main function of this Branch is the regular examination of all operating mines, quarries, sand and gravel pits and certain metallurgical works with a view to ensuring proper conditions of health and safety to the men employed. District offices to serve the local areas are maintained in the major mining centres of the province. Mine rescue stations in the principal mining sections are operated under the supervision of the Branch.

Exhibitions.—The Department each year presents displays pertaining to mining within the province at such exhibitions as the Canadian National at Toronto and at other centres from time to time.

Publications Branch.—All maps and reports of the Department are distributed through the agency of the Publications Branch located at the main office of the Department.

Library.—A mining library for the use of the Department and the public is maintained within the Department. This library stocks mainly publications and maps issued by the federal and provincial governments of Canada as well as numerous periodicals and bulletins published in the United States.

Roads to Resources Program.—An interdepartmental committee was set up in 1955 to decide on matters of policy and to determine the locations and priorities of proposed roads. The Minister of Mines sits on this committee with the Ministers of Lands and Forests, of Treasury, and Highways. The Department of Highways supervises the construction of all access roads. The sum of \$1,500,000 a year is made available for such projects, provided on a 50-50 basis by the Ontario Government and the Federal Government.

Manitoba.—The Mines Branch of the Manitoba Department of Mines and Natural Resources offers five main services of assistance to the mining industry: maintenance, by the Mining Recorder's offices at Winnipeg and The Pas, of all records essential to the

granting and retention of titles to every mineral location in Manitoba; compilation, by the geological staff of the Branch, of historical and current information pertinent to mineral occurrences of interest and expansion of this information by a continuing program of geological mapping; enforcement of mine safety regulations and, by collaboration with industry, introduction of new practices such as those concerned with mine ventilation and the training of mine rescue crews which contribute to the health and welfare of mine workers; and maintenance of a chemical and assay laboratory to assist the prospector and the professional man in the classification of rocks and minerals and the evaluation of mineral occurrences.

Manitoba also aids the mining industry by the construction of access roads to mining districts.

Saskatchewan.—Assistance to the mining industry in Saskatchewan is administered by the Mines Branch, Department of Mineral Resources, with its head office at Regina. The Branch is headed by a Director and comprises three divisions.

The Geology Division is directed by the Chief Geologist and maintains resident geologists in or near the principal mining areas. The Division conducts a prospectors' school which gives basic training in geology, mineralogy, prospecting and exploration techniques and administers the Prospectors' Assistance Plan which assists by lending equipment, paying certain transportation costs, paying for a grub-stake, and by providing technical advice. During the summer months, geological crews survey and map areas and prepare reports which are made available to the public.

The Engineering Division administers the Mines Regulation Act, the purpose of which is to ensure safe working conditions in mines. Inspections of mines are carried out by Division officers, a Chief Engineer of Mines stationed at Regina, and an Inspector of Mines stationed at Uranium City. Safety education is also part of the Division's work, taking the form of first aid instruction, mine rescue training, and analysis of accidents.

The Mining Lands Division is responsible for making disposition of all Crown minerals with the exception of petroleum and natural gas, and maintains records respecting areas let out by lease, permit or claim. Recording offices, having the responsibility of assisting the public in determining the lands available and accepting applications, are located at Regina, Prince Albert, La Ronge, Uranium City and Flin Flon.

Alberta.—Alberta Government assistance to the mining industry is diversified in character. The Mines Division of the Department of Mines and Minerals regulates coal mines and quarries and maintains standards of safety by inspection and certification of workers. The Workmen's Compensation Board also maintains safety standards and trains mine rescue crews. The oil and gas industries are served in a similar way by the Oil and Gas Conservation Board. Its regulatory measures, however, are also concerned with preventing the waste of oil and gas resources and with giving each owner of oil and gas rights the opportunity of obtaining a fair share of production. This Board compiles periodic reports and annual records which are of invaluable assistance in oil development in Alberta. The mining industry is also served by the Research Council of Alberta which has made geological surveys of most of the province and has carried forward projects concerned with the uses and development of minerals. The Council has studied the occurrence, uses and analyses of Alberta coals and their particular chemical and physical properties, the use of coals in the generation of power, and the upgrading and cleaning of coal and has also studied briquetting, blending, abrasion loss, shatter and crushing strength, asphalt binders and dust-proofing of coal. Studies have been made of glass sands, salt, fertilizers, cement manufacture and brick and tile manufacture. (See also p. 343.)

The province from time to time has had commissions examine various aspects of the mining industry when it has considered that their findings would be of assistance in developing such industries. The province, together with the Canadian Association of Oil Well Drilling Contractors and the Western Canada Petroleum Association, maintains

a detailed supervisory and safety training program concerned with the drilling of oil and gas wells. Of assistance also to mining companies and oil companies are the special deductions provided for in the Alberta Corporation Income Tax Act. These follow the parallel provisions in the federal Income Tax Act.

British Columbia.—The Department of Mines and Petroleum Resources of British Columbia provides the following services: detailed geological mapping as a supplement to the work of the Geological Survey of Canada; free assaying and analytical work for prospectors registered with the Department; assistance to the prospector in the field by departmental engineers and geologists; grub-stakes, limited to a maximum of \$700, for prospectors; assistance in the construction of mining roads and trails; and inspection of mines to ensure safe operating conditions.

Section 3.—Mining Legislation

Federal Mining Laws and Regulations.—The Federal Government administers mining laws in the Yukon Territory, the Northwest Territories, and certain other lands vested in the Crown in the right of Canada. The Yukon Quartz and Placer Mining Acts and the Canada Mining Regulations which are applicable to the Northwest Territories and other Crown lands are administered by the Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources. Minerals underlying federal land under grants are reserved to the Crown, and mining rights may be acquired by staking mineral claims under the appropriate Acts or Regulations. Twenty-one-year leases of claims may be issued and these leases may be renewed. The disposal of mineral rights underlying Indian reservations is subject to the consent of the Indians occupying the reserve and to the treaties relating thereto.

The Northwest Territories Quartz Mining Regulations were replaced by the Canada Mining Regulations, Mar. 3, 1961. The new Regulations provide for the exploration and development of minerals in the Northwest Territories and for the exploration and development of minerals underlying territorial waters of Canada and lying outside any of the provinces and the Yukon Territory. The revised Regulations require a prospector's licence to enter, locate and prospect on lands subject to the Regulations. However, a prospector's licence is not required to maintain claims in good standing.

Any individual over 18 years of age or any joint stock company incorporated or licensed to do business in Canada may hold a prospector's licence. Claim tenure is limited to ten years from the date of recording. At the end of ten years, the claim owner must apply for a lease or relinquish his rights. No lease will be granted to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease; no lease will be granted to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are owned by Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have the opportunity of participating in the financing and ownership of the corporation.

Any new mine beginning production after the Canada Mining Regulations came into force will not be required to pay royalties for a period of 36 months, starting from the day that the mine comes into production.

Oil and Gas Legislation.—The Federal Government administers oil and gas laws and regulations in the Yukon and Northwest Territories, through the Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa. All land in both Territories is, in the first instance, owned by the Federal Government, complete with under-rights. These include oil and gas rights. When title to land

is granted by letters patent, surface rights only are conveyed and under-rights continue to be vested in the Federal Government, which may dispose of them under appropriate legislation. Nine-year to 12-year permits to explore for oil and gas and 21-year oil and gas leases are available.

The Government has set up the Canada Oil and Gas Land Regulations and the Canada Oil and Gas Drilling and Production Regulations, both dated June 6, 1961. They also include provisions for the exploration, development and production of oil and gas from land under all sea-coast waters of Canada which are not within any province.

An oil and gas exploration permit may be issued to any individual over 21 years of age or to any joint stock company incorporated or licensed to do business in Canada, or incorporated in any province of Canada. Permits are issued in periods of nine, 10 or 12 years, depending on the location, by which times the permittee is expected to apply for an oil and gas lease or relinquish his rights. No oil and gas lease will be issued to an individual unless the Minister of Northern Affairs and National Resources is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease, or to a corporation unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are beneficially owned by persons who are Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange, and that Canadians will have an opportunity of participating in the financing and ownership of the corporation.

Provincial Mining Laws and Regulations.*—All Crown mineral lands lying within the boundaries of the several provinces (with the exception of those within Indian reserves and National Parks which are under the jurisdiction of the Federal Government) are administered by the respective provincial governments.

The granting of land in any province except Ontario and Nova Scotia no longer carries with it mining rights upon or under such land. In Ontario mineral rights are expressly reserved if they are not to be included. In Nova Scotia all minerals belong to the Crown except gypsum, limestone, and building materials, but the Governor in Council may declare deposits of either limestone or building materials to be minerals. Such declaration is to be based on economic value or to serve the public interest. In such case, the initial privilege of acquiring the declared minerals lies with the owner of the surface rights who must then conform with the requirements of the Mines Act. In Newfoundland, mineral and quarry rights are expressly reserved. Some early grants in British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, Quebec and Newfoundland also included certain mineral rights. Otherwise, mining rights must be separately obtained by lease or grant from the provincial authority administering the mining laws and regulations. Mining activities may be classified as placer, general minerals (or veined minerals and bedded minerals), fuels (coal, petroleum and gas) and quarrying. Provincial mining regulations under these divisions are summarized in the following paragraphs.

Placer.—In most provinces in which placer deposits occur there are regulations defining the size of placer holdings, the terms under which they may be acquired and held, and the royalties to be paid.

General Minerals.—These minerals are sometimes described as quartz, lode, or minerals in place. With the exception of British Columbia the most elaborate laws and regulations apply in this division. In all provinces except Alberta, a prospector's or miner's licence, valid for one year, must be obtained to search for mineral deposits, the licence being general in some areas but limited in others. A claim of promising ground of a specified size may then be staked. This claim must be recorded within a time limit and payment of recording fees made, except in Quebec where no fees are required. Work to a specified

* Compiled from material supplied by the provincial governments.

value per annum must be performed upon the claim for a period of up to ten years. There is no time limit in British Columbia but \$500 assessment work, of which a survey may represent two-fifths, must be performed and recorded before a lease may be obtained. In Quebec, a specified number of man-days of work must be performed and the excess may be carried forward for renewal of licence; before mining can be commenced, a mining concession must be purchased for which it is necessary to produce an engineer's report indicating the presence of an orebody. The taxation applied most frequently is a percentage of net profits of producing mines or royalties. In Newfoundland, the provincial mining tax was modified after Confederation on Mar. 31, 1949 to conform with the provincial obligations under the Dominion-Provincial Tax Agreement. No other form of taxation or royalty exists.

Fuels.—In provinces where coal occurs the size of holdings is laid down, together with the conditions of work and rental under which they may be held. In Quebec, ordinary mining claims give rights to all mineral substances and to their development, and stakings for combustible natural gas, salt, coal, mineral oil or naphtha, or iron sands may cover 1,280 acres per claim. Provision is sometimes made for royalties. Acts or regulations govern methods of production. In the search for petroleum and natural gas, an exploration permit or reservation is usually required. However, in Manitoba, Saskatchewan, Alberta and British Columbia leases usually follow the exploration reservation whether or not any discovery of oil or gas is made. In Manitoba, Saskatchewan and Alberta, exploration costs are applicable in part on the first year's lease rental. In other provinces, the discovery of oil or gas is usually prerequisite to obtaining a lease or grant of a limited area, subject to carrying out drilling obligations and paying a rental, a fee, or a royalty on production.

Quarrying.—Regulations under this heading define the size of holdings and the terms of lease or grant. On Quebec private lands the quarry belongs to the owner; on Crown lands mineral rights belong to the Crown and may be obtained in accordance with the provisions of the law although the rights to exploit peat or marl must be obtained by special licence. In Saskatchewan, sand and gravel belong to the owner of the surface of the land. In Alberta, sand, gravel, clay and marl recovered by excavating from the surface belong to the owner of the surface of the land.

Copies of mining legislation including regulations and other details may be obtained from the provincial authorities concerned.

Section 4.—Statistics of Mineral Production

Subsection 1.—Value and Volume of Mineral Production

Statistics of the annual value of mineral production are available from 1886, total production being shown for five-year intervals from that date to 1945 and annually for subsequent years in Table 4. These figures are not strictly comparable throughout the period because of minor changes in methods of computing metallic content of ores sold and valuations of products but they do serve to show broad trends in the mineral industry.

The increase in the value of mineral production since the end of World War II has been phenomenal, having more than tripled since 1948. Production per head of the population advanced from \$63.97 in that year to \$141.12 in 1961. Although part of this increase was accounted for by advanced prices, the index of the volume of output from Canadian mines recorded an advance from 90.0 (1949 = 100) to 263.2 in the same comparison.

4.—Value of Mineral Production, 1886-1961

Year	Total Value	Value per Capita	Year	Total Value	Value per Capita	Year	Total Value	Value per Capita
	\$	\$		\$	\$		\$	\$
1886.....	10,221,255	2.23	1935 ¹	312,344,457	28.80	1953.....	1,336,203,503	90.40
1890.....	16,763,353	3.51	1940.....	529,825,035	46.55	1954.....	1,488,382,091	96.59
1895.....	20,505,917	4.08	1945.....	498,755,181	41.32	1955.....	1,795,310,796	114.37
1900.....	64,420,877	12.15	1946.....	502,816,251	40.91	1956.....	2,084,905,554	129.35
1905.....	69,078,999	11.51	1947.....	644,869,975	51.38	1957.....	2,190,322,392	132.03
1910.....	108,823,623	15.29	1948.....	820,248,865	63.97	1958.....	2,100,739,038	123.22
1915.....	137,109,171	17.18	1949 ²	901,110,026	67.01	1959.....	2,409,020,511	138.12
1920.....	227,859,665	26.63	1950.....	1,045,450,073	76.24	1960.....	2,492,509,981	139.92
1925.....	226,583,333	24.38	1951.....	1,245,483,595	88.33	1961 ²	2,573,782,838	141.12
1930.....	279,873,578	27.42	1952.....	1,285,342,353	89.07			

¹ Beginning with 1935, exchange equalization on gold production is included.
production included from 1949.

² Value of Newfoundland

Current Production.—A detailed review of mineral production during 1961 is given at pp. 478-504. As stated there, the value of mineral commodities produced in 1961 reached a new high, amounting to nearly \$2,574,000,000; this total, however, was only 3.2 p.c. above the 1960 value of \$2,493,000,000. Major gains were made by petroleum which increased by \$64,000,000, and by nickel which advanced by \$62,000,000; natural gas output increased by \$11,410,000 asbestos by \$9,700,000, cement by \$7,400,000, natural gas by-products by \$6,500,000 and iron ore by \$5,400,000. On the other hand, uranium production decreased by \$66,000,000 and copper by \$6,300,000.

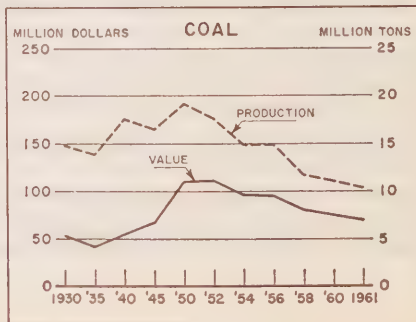
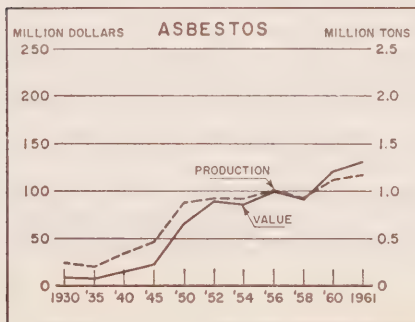
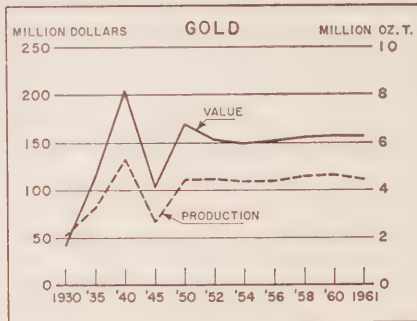
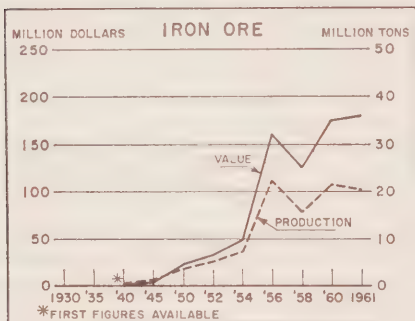
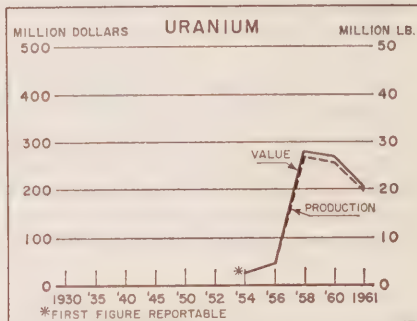
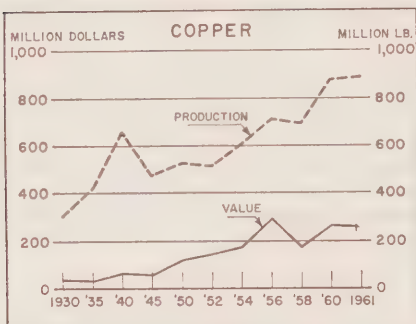
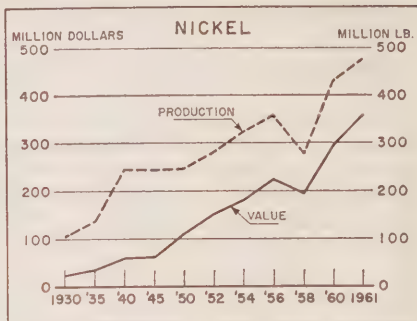
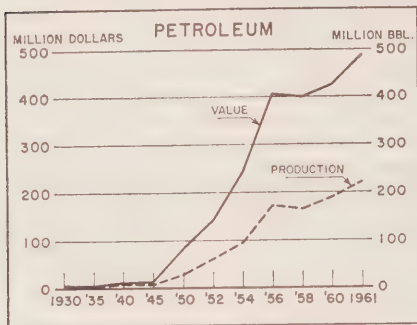
The value of all metals produced in 1961 amounted to \$1,397,000,000 compared with \$1,407,000,000 in 1960. Nickel was again the leading metal with an output valued at \$357,500,000, followed by copper valued at \$258,600,000, uranium at \$204,100,000, iron ore at \$180,500,000 and gold at \$156,900,000. The prices of gold and base metals were increased at mid-year when the exchange rate on the Canadian dollar changed from a premium to a discount.

The value of non-metallic minerals reached \$210,000,000, the increase over the 1960 total of \$197,500,000 being mainly accounted for by the asbestos industry which shipped nearly 1,200,000 tons of fibre valued at \$131,000,000; this record production was established despite competition from Asian and African producers. Lithia in concentrates, oxides, carbonates and salts was valued at over \$362,000. Salt production, valued at \$19,000,000, was only slightly less than in 1960. Elemental sulphur output was higher as a result of the increased output of sour natural gas. Although the processing plants produced more sulphur than the market demanded, there was an increase in sales.

The value of mineral or fossil fuels increased from \$566,000,000 in 1960 to \$643,000,000 in 1961. Crude oil production rose to 220,000,000 bbl. valued at \$487,300,000, and the volume of natural gas amounted to 646,018,000 Mcf. valued at \$63,600,000. The value of natural gas by-products, which include condensate, natural gasoline, propane, butane, etc., obtained by processing natural gas in the vicinity of the gas fields, increased to \$22,500,000. Coal production, after a mild revival in 1960, resumed the downward trend in evidence for several previous years.

There was little change in the value of structural materials produced, which amounted to \$323,000,000 in 1961 and \$322,000,000 in 1960. Cement shipments exceeded \$100,000,000 in value for the first time in 1961 but shipments of lime and sand and gravel declined.

QUANTITY AND VALUE OF LEADING MINERALS PRODUCED IN 1961



5.—Quantity and Value of Minerals Produced, 1959-61

Mineral	1959		1960		1961 ^p	
	Quantity	Value	Quantity	Value	Quantity	Value
		\$		\$		\$
Metallics	...	1,370,648,535	...	1,406,558,061	...	1,397,014,089
Antimony..... lb.	1,657,797	540,276	1,651,786	538,482	1,308,015	461,729
Bismuth..... "	334,736	590,212	423,827	762,048	479,700	886,933
Cadmium..... "	2,160,363	2,765,265	2,357,497	3,347,646	2,299,095	3,833,552
Calcium..... "	67,429	76,409	134,801	159,241	72,597	76,359
Cobalt..... "	3,150,027	5,954,916	3,568,811	6,763,016	3,236,323	4,902,657
Columbium (Cb ₂ O ₅).. "	...	...	...	...	61,050	64,375
Copper..... "	790,538,660	233,102,813	878,524,096	264,846,637	889,270,964	258,582,247
Gold..... oz.t.	4,483,416	150,508,275	4,628,911	157,151,527	4,425,820	156,851,060
Indium..... "	...	...	...	...	...	...
Iron ore..... ton	24,488,325	192,666,101	21,550,830	175,082,523	20,383,333	180,457,020
Iron, remelt..... "	...	7,187,434	...	10,972,979	...	14,481,184
Lead..... lb.	373,391,461	39,616,535	411,300,451	43,926,888	462,394,101	47,395,393
Magnesium..... "	12,204,448	3,179,515	14,577,138	4,313,987	15,480,618	4,334,573
Molybdenum..... "	748,566	940,596	767,621	1,015,380	765,897	1,085,091
Nickel..... "	373,110,226	257,008,801	429,012,707	295,640,279	475,895,770	357,515,237
Platinum, group..... oz.t.	328,095	16,932,438	483,604	28,873,508	404,883	23,829,172
Selenium..... lb.	268,107	2,576,749	3,651,466	469,892	2,990,595	2,990,595
Silver..... oz.t.	31,923,969	28,022,860	34,010,829	30,244,363	31,981,210	30,063,733
Tellurium..... lb.	13,023	27,999	44,682	156,388	95,873	475,545
Thorium..... "	47,447	105,676	...	...	...	...
Tin..... "	747,443	630,094	621,718	522,243	870,569	797,180
Titanium ore..... ton	26,777	129,565	2,947	16,265	...	...
Uranium (U ₃ O ₈)..... lb.	31,784,189	331,143,043	25,495,369	269,938,192	19,644,905	204,138,553
Zinc..... "	792,015,223	96,942,663	813,745,341	108,635,003	824,726,932	103,781,801
Non-metallics	...	178,216,641	...	197,505,783	...	210,250,683
Arsenious oxide..... lb.	1,578,307	62,786	1,724,326	70,400	306,363	18,350
Asbestos..... ton	1,050,429	107,433,344	1,118,456	121,400,015	1,171,245	131,053,441
Barite..... "	238,967	2,264,582	154,292	1,462,212	177,954	1,607,442
Diatomite..... "	5	100	44	1,430	25	500
Feldspar..... "	17,953	301,372	13,862	239,273	9,852	215,326
Fluorspar..... "	...	1,850,497	...	1,921,820	...	1,904,000
Garnet..... ton	...	...	32	4,480	33	4,620
Graphite..... "	...	...	...	...	3	1,654
Grindstone..... "	60	9,000	10	2,000	8	1,600
Gypsum..... "	5,878,630	8,393,703	5,205,731	9,498,711	5,014,905	9,098,571
Iron oxide..... "	1,235	108,286	909	78,780	690	57,110
Lithia..... lb.	2,756,280	1,422,153	204,666	84,135	515,110	362,850
Magnesian dolomite and brucite..... "	...	3,050,779	...	3,279,021	...	2,992,101
Mica..... lb.	813,834	62,004	1,702,605	94,203	2,061,970	131,375
Mineral water..... gal.	369,113	202,969	375,425	201,764	375,500	201,800
Nepheline syenite..... ton	228,722	2,300,932	240,636	2,891,095	247,688	2,473,118
Peat moss..... "	184,049	6,226,688	185,784	6,088,138	195,030	6,328,953
Potash (K ₂ O)..... "	...	1,408,462	...	178,700	...	...
Pyrrophyllite..... ton	1,099,564	3,433,095	1,032,288	3,316,378	505,912	1,493,546
Pyrite, pyrrhotite..... "	2,163,546	3,436,730	2,260,766	3,266,705	2,168,005	2,828,198
Quartz..... "	3,289,976	18,034,522	3,314,920	19,355,658	3,213,600	19,121,900
Salt..... "	1,926	354,295	1	...	1	...
Silica brick..... M	...	...	...	...	...	...
Soapstone, talc and pyrophyllite..... ton	39,176	512,129	41,636	523,181	48,095	710,418
Sodium sulphate..... "	179,535	2,881,861	214,208	3,449,155	249,694	4,024,558
Sulphur in smelter gas..... "	277,030	2,716,416	289,620	2,854,623	311,211	3,028,776
Sulphur, elemental..... "	145,656	2,620,787	274,359	4,298,906	396,286	6,305,183
Titanium dioxide, etc..... "	...	8,507,149	...	12,947,000	...	16,287,293
Fuels	...	535,577,823	...	565,851,829	...	643,425,160
Coal..... ton	10,626,722	73,875,895	11,011,138	74,676,240	10,366,678	69,983,343
Natural gas..... Mcf.	417,334,527	39,609,393	522,972,327	52,196,882	646,018,204	63,607,157
Natural gas by-products..... "	...	...	...	16,052,210	...	22,530,000
Petroleum, crude..... bbl.	184,778,497	422,092,535	189,534,221	422,926,497	220,460,562	487,304,660
Structural Materials	...	324,577,512	...	322,594,308	...	323,092,906
Clay products (brick, tile, etc.)..... ton	...	42,515,448	...	38,226,538	...	38,045,405
Cement..... "	6,284,486	95,147,798	5,787,225	93,261,473	6,145,168	100,692,169
Lime..... "	1,685,725	21,304,021	1,529,568	19,301,790	1,385,953	17,275,787
Sand and gravel..... "	185,123,746	104,651,461	192,074,498	111,163,886	178,502,194	106,413,509
Stone..... "	46,429,535	60,958,784	45,359,449	60,640,621	45,315,108	60,666,036
Grand Totals	...	2,409,020,511	...	2,492,509,981	...	2,573,782,838

¹ Not shown to avoid revealing individual company operations.

Analysis of Current Value and Volume.—To assist in clearer and simpler interpretation of the trends in mineral production in Canada over the ten years 1952-61, the percentage of the total value contributed by each principal mineral in each year is given in Table 6.

6.—Percentage of the Total Value Contributed by Principal Minerals, 1952-61

Mineral	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961 ¹
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Metallics¹	56.7	53.1	53.7	56.1	54.9	52.9	53.8	56.9	56.4	54.3
Copper.....	11.4	11.3	11.8	13.4	14.1	9.4	8.3	9.7	10.6	10.0
Gold.....	11.9	10.4	10.0	8.7	7.3	6.8	7.4	6.2	6.3	6.1
Iron ore.....	4.6	6.2	6.2	6.2	7.6	7.6	6.0	8.0	7.0	7.0
Lead.....	4.3	3.7	3.9	3.2	2.8	2.3	2.0	1.6	1.8	1.8
Nickel.....	11.8	12.0	12.1	12.0	10.8	11.8	9.2	10.7	11.9	13.9
Platinum metals.....	1.4	1.5	1.4	1.3	1.1	1.2	0.7	0.5	1.2	0.9
Silver.....	1.6	1.8	1.7	1.4	1.2	1.1	1.3	1.2	1.2	1.2
Uranium.....	—	—	1.8	1.4	2.2	6.2	13.3	13.7	10.8	7.9
Zinc.....	10.1	7.2	6.1	6.6	6.1	4.6	4.4	4.0	4.4	4.0
Non-metallics¹	9.7	9.4	8.8	8.1	8.3	7.7	7.2	7.4	7.9	8.2
Asbestos.....	6.9	6.4	5.8	5.4	5.3	4.8	4.4	4.5	4.9	5.1
Gypsum.....	0.5	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4
Quartz.....	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Salt.....	0.6	0.5	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.7
Sulphur in smelter gas.....	0.3	0.2	0.3	0.3	0.4	0.1	0.2	0.1	0.1	0.1
Sulphur, elemental.....	—	—	—	—	—	—	—	0.1	0.2	0.2
Titanium dioxide, etc.....	0.1	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.6
Fuels	20.4	23.5	23.7	23.1	24.9	25.8	24.3	22.2	22.7	25.0
Coal.....	8.6	7.7	6.5	5.2	4.6	4.1	3.8	3.1	3.0	2.7
Natural gas.....	0.7	0.8	0.8	0.9	0.9	1.0	1.5	1.6	2.1	2.5
Petroleum.....	11.1	15.0	16.4	17.0	19.4	20.7	19.0	17.5	17.0	18.9
Structural Materials	13.1	14.0	13.8	12.7	11.9	13.6	14.7	13.5	12.9	12.5
Clay products.....	1.9	2.2	2.2	2.0	1.8	1.6	2.0	1.8	1.5	1.5
Cement.....	3.7	4.4	4.0	3.6	3.8	4.3	4.6	4.0	3.7	3.9
Lime.....	1.1	1.1	1.0	0.9	0.7	0.8	0.9	0.9	0.8	0.7
Sand and gravel.....	4.0	4.0	4.0	3.8	3.5	4.2	4.6	4.3	4.5	4.1
Stone.....	2.4	2.3	2.6	2.4	2.1	2.7	2.6	2.5	2.4	2.3
Grand Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Includes minor items not specified.

On the basis of 1949 production levels equalling 100,* the total volume of mineral output had increased by 1961 to 263.2, which was a 4-p.e. advance over the previous year. The most noteworthy gains during the year were recorded in nickel, asbestos, natural gas and crude petroleum mining. These were partially offset by the continued decline of uranium (not shown) and a drop in iron ore mining.

* For a description of this index, as well as one for manufacturing and electric power and gas utilities, see DBS Reference Paper *Revised Index of Industrial Production, 1935-1957 (1949-1960)* (Catalogue No. 61-502). To update these series and others in the Index of Industrial Production, see DBS monthly report *Index of Industrial Production (1949-1960)* (Catalogue No. 61-005).

7.—Indexes of the Volume of Production of the Principal Mining Industries, 1952-61

1949=100)

Mineral	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Metallics	110.3	115.7	129.0	142.7	151.0	170.0	180.3	201.3	197.9	183.8
Copper.....	98.0	96.1	114.8	123.7	135.2	137.1	131.8	151.6	168.7	170.4
Gold.....	108.5	98.5	105.8	110.2	107.9	106.7	109.7	108.4	111.2	106.8
Nickel.....	109.2	111.7	125.3	135.9	139.0	146.8	110.2	144.8	166.9	183.8
Iron ore.....	126.5	170.6	185.4	316.5	418.6	462.6	321.5	448.9	406.3	351.4
Non-metallics	155.5	152.9	161.4	180.2	187.6	179.0	171.1	191.4	192.6	211.7
Asbestos.....	171.5	162.3	167.8	191.9	188.4	184.3	178.3	193.5	201.4	223.4
Fuels	163.9	192.7	215.6	273.2	344.7	358.2	329.5	363.1	380.2	433.5
Coal.....	90.5	81.5	75.2	74.1	76.6	65.4	56.7	51.9	53.3	49.9
Natural gas.....	128.9	147.8	169.6	204.5	235.0	295.1	401.6	503.9	589.2	713.5
Petroleum.....	291.8	385.5	457.8	616.8	812.7	859.5	782.6	873.7	909.9	1,051.2
Total Mining	131.0	142.1	158.7	185.2	212.3	227.8	227.0	251.1	253.3	263.2

¹ Based on commodity data.

Subsection 2.—Provincial Distribution of Mineral Production

Changes in provincial mineral production in 1961 compared with 1960 varied across Canada. The major increases were shown by Manitoba, as a result of the coming into production of the new Thompson nickel development, and Alberta, where the greatly increased production of crude petroleum, natural gas, natural gas by-products and elemental sulphur brought total output to a high point and moved that province up to second place in value of mineral production, following Ontario. A fairly substantial decrease in total production was recorded by Ontario mainly as a result of the lower output of uranium and of copper, and minor decreases were shown also by Prince Edward Island, Nova Scotia and the Yukon and Northwest Territories.

In 1961, Ontario produced 36.8 p.c. of the total mineral output compared with 39.4 p.c. in 1960 and 40.3 p.c. in 1959. The value of production within the province decreased by 3.6 p.c. As already stated, Alberta moved to second place in 1961, producing 18.0 p.c. of the Canadian total compared with 15.9 p.c. in 1960 and 15.6 p.c. in 1959; the value for the province was up by 17.3 p.c. Quebec, in third place, recorded only a small advance over 1960, increased asbestos output being largely offset by lower shipments of iron ore and copper. The province produced 17.4 p.c. of the Canadian total compared with 17.9 p.c. in 1960 and 18.3 p.c. in 1959. Saskatchewan and British Columbia followed Quebec in value of mineral output, producing, respectively, 8.5 p.c. and 7.5 p.c. of the Canadian total. The 68.9-p.c. increase recorded by Manitoba resulted in that province displacing Newfoundland in sixth place. Manitoba's share of the Canadian total rose from 2.4 p.c. in 1960 to 3.9 p.c. in 1961 and Newfoundland's share increased slightly from 3.5 p.c. to 3.6 p.c. Newfoundland's output, however, was 7.0 p.c. higher than in 1960. Lower production of coal and gypsum offset an increase in salt production in Nova Scotia, bringing the value of mineral production in that province down by 9.0 p.c. Its contribution to the Canadian total dropped slightly from 2.6 p.c. in 1960 to 2.3 p.c. in 1961. Increased production of structural materials brought New Brunswick's total up very slightly but decreased output of the same materials in Prince Edward Island was responsible for a drop in the total for that province. Lower gold and uranium output resulted in lower totals for the Territories.

8.—Value of Mineral Production, by Province, 1952-61

NOTE.—Figures from 1899 are given in the corresponding table of previous Year Books beginning with the 1933 edition.

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	\$	\$	\$	\$	\$	\$	\$
1952.....	32,512,313	—	64,552,383	11,298,960	270,483,962	444,669,412	25,105,045
1953.....	33,780,622	—	67,364,408	11,662,618	251,881,781	465,877,093	25,264,112
1954.....	42,898,033	—	73,450,898	12,468,322	278,818,070	496,747,571	35,106,922
1955.....	68,462,956	—	67,133,539	15,759,744	357,010,045	583,954,682	62,018,231
1956.....	84,349,006	—	66,092,274	18,258,302	422,464,410	650,823,362	67,909,407
1957.....	82,682,263	—	68,058,743	23,120,689	406,055,757	748,824,322	63,464,285
1958.....	64,994,754	—	62,706,891	16,275,971	365,706,489	789,601,868	57,217,569
1959.....	72,156,996	4,559,171	62,879,647	18,133,290	440,897,186	970,762,201	55,512,410
1960.....	85,637,123	1,172,587	65,453,531	17,072,739	446,202,726	983,104,412	58,702,697
1961P.....	92,681,614	947,186	59,544,574	17,851,151	447,437,159	948,255,587	99,156,908
	Saskatchewan	Alberta	British Columbia	Northwest Territories	Yukon Territory	Canada	
	\$	\$	\$	\$	\$	\$	\$
1952.....	49,506,094	196,811,654	170,071,244	8,944,835	11,386,451	1,285,342,353	
1953.....	48,081,970	248,863,295	158,487,812	10,200,230	14,738,562	1,336,303,503	
1954.....	68,216,009	279,042,735	158,630,867	26,414,000	16,588,664	1,488,382,091	
1955.....	85,150,128	325,974,326	189,524,574	25,597,821	14,724,750	1,795,310,796	
1956.....	122,744,698	411,171,898	203,277,828	22,157,935	15,656,434	2,084,905,554	
1957.....	173,461,037	410,211,763	178,931,120	21,400,615	14,111,798	2,190,322,392	
1958.....	209,940,966	345,939,248	151,149,136	24,895,290	12,310,756	2,100,739,038	
1959.....	210,042,051	376,215,593	159,395,092	25,874,496	12,592,378	2,409,020,511	
1960.....	212,093,225	395,344,010	186,261,646	27,135,087	13,330,198	2,492,509,981	
1961P.....	218,201,040	463,709,114	192,319,685	20,691,909	12,986,911	2,573,782,838	

9.—Detailed Mineral Production, by Province, 1960 with Preliminary Totals for 1961

Mineral	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and Northwest Territories	CANADA	
												1960	1961 ^p
Metallics\$	78,925,679	—	102	—	224,294,082	417,803,023	29,904,851	84,187,425	6,501	131,721,707	39,714,691	1,406,558,061	1,397,011,089 ^e
Antimony.....lb.	—	—	—	—	—	—	—	—	—	1,651,786	—	1,651,786	1,308,015
Bismuth.....lb.	—	—	—	—	172,983	37,835	—	—	—	538,482	—	538,482	461,729
Cadmium.....lb.	—	—	—	—	297,018	45,402	—	—	—	213,009	—	423,827	479,700
Calcium.....lb.	—	—	—	—	66,499	—	110,138	256,498	—	419,628	—	762,048	886,933
Cobalt.....lb.	—	—	—	—	94,429	—	156,396	364,227	—	1,778,866	145,496 ²	2,357,497	2,399,005
Copper.....lb.	—	—	—	—	—	134,801	—	—	—	2,625,990	206,604 ²	3,347,046	3,838,552
Gold.....oz.t.	—	—	—	—	—	159,241	—	—	—	—	—	134,801	72,597
Iron.....oz.t.	—	—	—	—	—	3,258,401	310,410	—	—	—	—	156,241	76,359
Iron ore.....ton	7,611,365	—	—	—	7,457,971	5,325,197	—	—	—	—	—	3,568,811	3,236,323
Iron (remelt).....ton	54,673,717	—	—	—	61,762,435	48,399,442	—	—	—	—	—	6,763,016	4,902,657
Lead.....lb.	48,043,926	—	—	—	10,972,979	1,661,896	2,074,660	63,570,278	—	33,117,729	1,040,000 ³	878,524,096	889,270,964
Magnesium.....lb.	8,131,091	—	—	—	570,195	1,177,490	221,574	19,255,437	191	9,082,552	315,016 ³	264,846,637	258,582,247
Molybdenum.....lb.	—	—	—	—	14,577,138	4,313,987	—	84,775	—	212,359	496,219 ²	4,628,911	4,425,820
Nickel.....lb.	—	—	—	—	762,207	—	1,791,270	2,878,111	6,484	7,226,563	16,346,635 ²	157,151,527	156,851,060
Platinum.....lb.	—	—	—	—	1,005,880	—	—	—	—	—	—	—	—
Platinum group.....oz.t.	—	—	—	—	403,300,283	18,118,768	—	—	—	1,156,297	—	21,550,830	20,383,333
Selenium.....lb.	—	—	—	—	277,924,234	12,400,455	—	—	—	10,256,879	—	175,082,523	180,457,020
Silver.....oz.t.	1,271,126	—	—	—	28,871,955	24,358	2,074,660	511,147	—	—	—	10,972,979	14,481,184
Tellurium.....lb.	1,130,158	—	—	—	279,759	144,500	221,574	1,163,845	—	333,894,197	20,286,871 ²	411,300,451	462,394,101
Thorium.....lb.	—	—	—	—	1,998,313	1,011,500	170,508	73,021	—	35,659,900	2,166,638 ²	43,296,888	47,395,393
Tin.....lb.	—	—	—	—	4,115,105	11,220,823	501,637	1,163,845	—	14,577,138	—	14,577,138	15,480,618
Titanium ore.....ton	—	—	—	—	3,668,740	9,976,434	446,005	1,034,775	—	4,313,987	—	4,313,987	4,334,573
Uranium.....lb.	—	—	—	—	29,925	7,450	1,826	5,482	—	—	—	767,621	765,897
Vanadium.....lb.	—	—	—	—	104,738	26,075	6,388	19,187	—	9,500	—	1,015,380	1,085,091
Zinc.....lb.	—	—	—	—	—	—	—	—	—	3,779,878	3,813,778 ²	429,012,707	475,895,770
—	—	—	—	—	—	—	—	—	—	2,045,915	2,669,645 ²	295,640,279	357,515,337
—	—	—	—	—	—	—	—	—	—	—	1,553 ²	483,604	404,583
—	—	—	—	—	—	—	—	—	—	—	—	28,873,508	23,829,172
—	—	—	—	—	—	—	—	—	—	—	—	521,638	469,892
—	—	—	—	—	—	—	—	—	—	—	—	3,651,466	2,990,595
—	—	—	—	—	—	—	—	—	—	—	—	34,016,829	31,981,210
—	—	—	—	—	—	—	—	—	—	—	—	30,244,362	30,068,733
—	—	—	—	—	—	—	—	—	—	—	—	44,682	95,873
—	—	—	—	—	—	—	—	—	—	—	—	156,388	475,545
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—						

Uranium (U ₃ O ₈)..lb.	—	—	—	19,793,727	—	—	4,624,431	—	—	1,077,211 ²	25,495,369	19,644,905
Zinc.....lb.	68,415,856	—	—	211,983,533	—	—	48,722,961	—	—	9,231,698 ²	269,938,192	204,138,553
Non-metals... \$	2,225,362	—	—	99,614,995	—	—	85,405,095	—	—	13,402,899 ²	813,745,341	824,726,932
Arsenic oxide..lb.	—	—	—	13,298,602	—	—	6,512,255	—	—	1,789,287 ²	108,635,003	103,781,801
Asbestos.....ton	—	—	—	1,054,424	—	—	—	—	—	—	—	—
Barite.....ton	—	—	—	107,788,172	—	—	—	—	—	—	—	—
Diatomite.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Feldspar.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Fluorspar.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Garnet.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Grindstone.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Gypsum.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Iron oxide.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Lithia.....lb.	—	—	—	—	—	—	—	—	—	—	—	—
Magnetite dolo- mite and brucite \$	—	—	—	—	—	—	—	—	—	—	—	—
Mica.....lb.	—	—	—	—	—	—	—	—	—	—	—	—
Mineral water..gal.	—	—	—	—	—	—	—	—	—	—	—	—
Nepheline ton	—	—	—	—	—	—	—	—	—	—	—	—
Syenite.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Peat moss.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Potash (K ₂ O).....ton	—	—	—	—	—	—	—	—	—	—	—	—
Pyrite, ton	—	—	—	—	—	—	—	—	—	—	—	—
Pyrrhotite, ton	—	—	—	—	—	—	—	—	—	—	—	—
Quartz.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Salt.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Soapstone and talc. ^s ton	—	—	—	—	—	—	—	—	—	—	—	—
Sodium sulphate, ton	—	—	—	—	—	—	—	—	—	—	—	—
Non-metals... \$	2,225,362	—	—	11,134,888	1,101,722	129,973,075	5,110,194	4,856,578	16,451,056	—	197,505,783	210,250,683 ⁷
Arsenic oxide..lb.	—	—	—	—	—	—	—	—	—	—	—	—
Asbestos.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Barite.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Diatomite.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Feldspar.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Fluorspar.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Garnet.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Grindstone.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Gypsum.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Iron oxide.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Lithia.....lb.	—	—	—	—	—	—	—	—	—	—	—	—
Magnetite dolo- mite and brucite \$	—	—	—	—	—	—	—	—	—	—	—	—
Mica.....lb.	—	—	—	—	—	—	—	—	—	—	—	—
Mineral water..gal.	—	—	—	—	—	—	—	—	—	—	—	—
Nepheline ton	—	—	—	—	—	—	—	—	—	—	—	—
Syenite.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Peat moss.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Potash (K ₂ O).....ton	—	—	—	—	—	—	—	—	—	—	—	—
Pyrite, ton	—	—	—	—	—	—	—	—	—	—	—	—
Pyrrhotite, ton	—	—	—	—	—	—	—	—	—	—	—	—
Quartz.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Salt.....ton	—	—	—	—	—	—	—	—	—	—	—	—
Soapstone and talc. ^s ton	—	—	—	—	—	—	—	—	—	—	—	—
Sodium sulphate, ton	—	—	—	—	—	—	—	—	—	—	—	—

For footnotes, see end of table, p. 524.

9.—Detailed Mineral Production, by Province, 1960 with Preliminary Totals for 1961—concluded

Mineral	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and Northwest Territories	CANADA	
												1960	1961 ¹
Non-metallics—conc.													
Sulphur in ton	—	—	—	—	33,273	937,660	—	—	—	1,813,690	—	289,620	311,211
Smelter gas, ton	—	—	—	—	—	—	—	—	—	—	—	2,834,623	3,024,776
Sulphur, ton	—	—	—	—	—	28,037	—	38,204	3,650,145	582,500	—	274,359	389,285
elemental, ton	—	—	—	—	—	—	—	—	—	—	—	4,298,906	6,395,183
Titanium, ton	—	—	—	—	—	—	—	—	—	—	—	—	—
dioxide, etc., \$	—	—	—	—	12,947,000	—	—	—	—	—	—	12,947,000	16,287,293
Fuels													
Coal.....\$	—	—	44,981,257	8,834,749	—	9,724,035	10,699,384	112,959,191	362,558,938	15,391,658	750,594	565,851,829	643,425,160
Coal.....ton	—	—	4,570,240	1,028,064	—	—	—	2,170,707	2,391,699	843,888	6,470 ¹	11,011,138	10,366,678
Natural gas.....Mcf.	—	—	44,981,257	8,834,749	—	—	—	3,833,620	1,516,842	5,580,017	97,197	74,676,240	69,983,343
Natural gas.....bbl.	—	—	—	—	—	16,987,056	—	30,571,023	283,192,085	89,362,109	29,789	522,922,327	646,018,204
Natural gas by-products, bbl.	—	—	—	—	—	6,573,990	—	3,722,992	31,148,075	7,357,463	12,219	32,196,882	63,007,157
Petroleum, bbl.	—	—	—	—	—	—	—	—	—	—	—	—	—
crude, \$	—	—	—	—	—	1,005,030	4,794,045	1,435,564	14,021,998	593,648	—	16,032,210	22,530,000
	—	—	—	—	—	3,150,095	10,990,384	103,467,009	302,841,423	1,936,850	408,549	189,534,221	220,460,352
	—	—	—	—	—	—	—	—	—	—	—	422,926,497	487,304,560
Structural Materials													
Materials.....\$	5,486,082	1,172,587	9,337,284	7,136,268	91,935,569	130,320,132	16,711,766	9,845,412	27,951,993	22,697,225	—	322,594,398	323,092,906
Clay products.....ton	83,435	—	—	705,296	8,093,038	20,191,235	813,125	1,130,232	3,551,982	1,984,907	—	38,226,538	38,045,405
Cement.....ton	93,100	—	—	193,246	1,875,997	2,007,044	439,788	1,190,262	693,890	384,933	—	6,787,228	6,145,108
Lime.....ton	1,088,064	—	—	2,543,622	28,315,150	30,690,880	8,145,902	3,997,809	11,474,868	6,432,752	—	93,261,473	100,692,169
Sand and gravel.....ton	—	—	—	16,727	4,449,164	12,278,630	824,698	—	43,731	30,541	—	1,326,953	1,275,787
Stone.....ton	2,912,533	474,181	8,717,693	6,184,924	46,255,933	77,000,803	10,800,596	8,082,539	13,385,970	15,699,293	—	19,301,790	17,275,787
Stone.....ton	3,099,395	422,587	6,020,230	2,091,227	22,620,093	43,029,708	5,907,509	4,717,271	11,888,350	10,327,250	—	132,074,498	178,502,293
Stone.....ton	340,843	750,000	914,937	1,883,867	20,301,500	17,038,582	673,598	—	167,201	2,256,911	—	111,163,886	106,413,609
Stone.....\$	644,588	750,000	1,643,427	1,413,705	28,458,115	23,220,689	1,060,535	—	310,427	3,149,075	—	45,359,449	45,315,108
Grand Totals, 1960	\$ 86,637,123	\$ 1,172,587	\$ 65,453,531	\$ 17,072,739	\$ 446,202,726	\$ 983,104,412	\$ 68,702,697	\$ 212,093,225	\$ 395,344,010	\$ 186,201,646	\$ 40,465,255	\$ 2,492,509,981	...
Grand Totals, 1961¹	\$ 92,681,614	\$ 947,486,59	\$ 544,574	\$ 17,851,151	\$ 447,437,159	\$ 948,255,587	\$ 99,156,908	\$ 218,201,040	\$ 463,709,111	\$ 192,319,685	\$ 33,678,820	...	\$ 2,573,782,838

¹ Includes 61,050 lb. of columbium (C₂O₃) valued at \$64,375.² All produced in Yukon Territory.³ Not shown to avoid revealing individual company operations.⁴ Yukon production 7,217,361 o.z.t. valued at \$6,416,996; remainder N.W.T.⁵ Includes three tons of graphite valued at \$1,654 produced in Quebec.⁶ Includes pyrophyllite.

Subsection 3.—Production of Metallic Minerals

The metallic minerals of greatest dollar value in Canada during 1961 were, in order: nickel, copper, uranium, iron ore, gold, zinc, lead and silver. This order remained unchanged from 1960 although only nickel, iron ore and lead advanced in value of production over the previous year. Developments taking place in metal mining during 1961 are described in detail in Section 1, pp. 481-493. The following statistical information gives a comparison of quantity and value figures for each of the principal metals over the ten-year period 1952-61.

Nickel.—The output of nickel reached an all-time high in 1961, in both quantity and value. A steadily upward trend in production experienced since the end of the War was interrupted in 1958 when a rise in world stocks brought about a decrease in nickel prices. However, 1959 output was again close to the level of 1957 and the increases by 1961 amounted to 27.5 p.c. in quantity and 39.1 p.c. in value.

About 84 p.c. of the 1961 quantity shown in Table 10 came from the Sudbury area of Ontario, about 14 p.c. from the new Thompson and Lynn Lake mines in Manitoba and the remainder about equally from Rankin Inlet on Hudson Bay in the Northwest Territories and from Hope, B.C.

Canada uses only about 5,000 tons of refined nickel (anodes, cathodes and ingots) annually. Exports amounted to 133,504 tons in 1961, mostly to the United States, and exports of nickel in ores, concentrates and matte amounted to 92,938 tons.

10.—Quantity and Value of Nickel Produced, 1952-61

NOTE.—Figures from 1889 are given in the corresponding table of previous Year Books beginning with the 1929 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1952.....	140,559	151,349,438	1957.....	187,958	258,977,309
1953.....	143,643	160,430,098	1958.....	139,559	194,142,019
1954.....	166,299	180,173,392	1959.....	186,555	257,008,801
1955.....	174,928	215,866,007	1960.....	214,506	295,640,279
1956.....	178,515	222,204,860	1961P.....	237,948	357,515,337

Copper.—Although the quantity of copper produced in Canada reached its peak in 1961, the total value for that year was somewhat lower than in 1960. The 1.2-p.c. increase in total tonnage produced in 1961 over 1960 was contributed by Newfoundland, Ontario, Saskatchewan, British Columbia and Yukon Territory.

11.—Copper Production, by Province, and Total Value 1952-61

NOTE.—Figures from 1886 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1952.....	2,959	383	—	68,846	125,343	9,374
1953.....	2,814	788	—	54,920	130,582	9,411
1954.....	3,481	991	—	83,930	140,776	12,274
1955.....	3,052	1,028	35	101,021	146,407	19,379
1956.....	3,108	404	6	122,300	156,271	17,973
1957.....	4,536	—	5,738	112,409	171,703	18,551
1958.....	14,751	—	328	131,445	142,035	12,601
1959.....	14,989	—	—	134,912	188,272	12,945
1960.....	13,863	—	—	157,470	206,272	12,793
1961P.....	16,853	6	—	151,015	211,534	10,998

11.—Copper Production, by Province, and Total Value 1952-61—concluded

Year	Saskatchewan	British Columbia	Northwest Territories	Yukon Territory	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1952.....	30,344	20,786	3	—	258,038	146,679,040
1953.....	30,588	24,148	—	—	253,252	150,953,742
1954.....	36,192	25,088	—	—	302,732	175,712,693
1955.....	32,945	22,127	—	—	325,994	239,756,455
1956.....	33,116	21,682	—	—	354,860	292,958,091
1957.....	30,597	15,410	165	—	359,109	206,897,988
1958.....	37,510	6,010	434	—	345,114	174,430,930
1959.....	35,536	8,121	494	—	395,269	233,102,813
1960.....	31,785	16,559	520	—	439,262	264,846,637
1961 ^p	33,882	19,421	486	440	444,635	258,582,247

Uranium.—Uranium mineralization has been found in Canada at intervals along the western and southern edges of the Canadian Shield but production has been concentrated in four areas within this belt—Great Bear Lake in the Northwest Territories, Beaverlodge in northern Saskatchewan, and Elliot Lake and Bancroft in Ontario. Although output of uranium first began in the Northwest Territories in 1942, figures were not available until 1954 because of government restrictions. However, it was after that time that the large mines and mills of Saskatchewan and Ontario came into production. Peak output amounting to 31,800,000 lb. was reached in 1959 from 23 mines, but by the end of 1961, for economic reasons (see p. 485), only eight mines remained in operation and production dropped to about 20,000,000 lb. for the year. Of the 1961 quantity, 75.9 p.c. was produced in Ontario, 22.0 p.c. in Saskatchewan and the remainder in the Northwest Territories.

12.—Production and Value of Uranium (U_3O_8), by Province, 1954-61

Year	Ontario		Saskatchewan		Northwest Territories		Canada	
	Quantity ¹	Value	Quantity ¹	Value	Quantity ¹	Value	Quantity ¹	Value
	lb.	\$	lb.	\$	lb.	\$	lb.	\$
1954.....	—	—	..	10,981,417	..	15,486,157	..	26,467,574
1955.....	..	487,054	..	12,312,471	..	13,232,079	..	26,031,604
1956.....	906,614	9,361,867	2,780,534	27,194,202	873,912	9,176,076	4,561,060	45,732,145
1957.....	7,970,598	82,940,763	4,462,552	44,561,832	838,264	8,801,769	13,271,414	136,304,364
1958.....	19,970,136	210,149,700	5,924,253	59,815,924	910,843	9,572,847	26,805,232	279,538,471
1959.....	25,492,171	268,529,993	5,372,685	54,457,321	919,333	8,155,729	31,784,189	331,143,043
1960.....	19,793,727	211,983,533	4,624,431	48,722,961	1,077,211	9,231,698	25,495,369	269,938,192
1961 ^p	14,905,905	156,714,553	4,320,000	44,642,000	419,000	2,782,000	19,644,905	204,138,553

¹ Figures for 1956 include radium salts, silver, cobalt and uranium oxides; figures for 1957-61 are for uranium oxide (U_3O_8).

Iron Ore.—Shipments of iron ore from Canadian mines, after a considerable setback in 1958, reached record levels in 1959 and then dropped back in 1960 by 12.0 p.c. in quantity and 9.1 p.c. in value. In 1961 the quantity shipped showed a further reduction of 5.4 p.c. but increased prices resulted in a 3.1-p.c. increase in value. Increases reported by Newfoundland, Ontario and British Columbia were more than offset by lower shipments in Quebec where output was down by 28.5 p.c.

Production of pig iron and of steel ingots and castings were at their highest level in 1961. Exports of iron in the form of crude ore, concentrates, and calcined or roasted ore amounted to 16,652,346 tons valued at \$142,600,000, showing little change from the 1960 totals. Of the 1961 tonnage exported, 63 p.c. went to the United States and most of the remainder to Europe, mainly to Britain. Japan received 1,298,485 tons.

13.—Iron Ore Shipments and Production of Pig Iron and Steel Ingots and Castings, 1952-61

Year	Iron Ore Shipments				Canada		Production of Pig Iron	Production of Steel Ingots and Castings
	Nfld.	Que.	Ont.	B.C.	Quantity	Value		
	tons	tons	tons	tons	tons	\$	tons	tons
1952.....	1,653,878	—	2,717,490	900,481	5,271,849	33,744,311	2,681,585	3,703,111
1953.....	2,686,481	—	2,832,090	991,247	6,509,818	44,102,944	3,012,268	4,116,068
1954.....	3,758,526	650,415	2,416,911	535,746	7,361,598	49,666,507	2,211,029	3,195,030
1955.....	7,206,883	4,103,173	4,362,191	610,930	16,283,177	110,435,850	3,215,367	4,534,672
1956.....	8,463,572	7,956,549	5,558,203	369,954	22,348,278	160,362,118	3,568,203	5,301,202
1957.....	8,174,779	8,872,948	4,867,105	357,342	22,272,174	167,221,425	3,718,350	5,068,149
1958.....	5,390,775	6,060,325	3,644,952	630,271	15,726,323	126,131,181	3,059,579	4,359,466
1959.....	6,105,819	11,615,169	6,018,089	849,248	24,488,325	192,666,101	4,182,775	5,901,487
1960.....	7,611,365	7,457,971	5,325,197	1,156,297	21,550,830	175,082,523	4,278,425	5,789,570
1961 ^a	7,853,973	5,335,419	5,731,948	1,461,993	20,383,333	180,457,020	4,925,395	6,466,324

Gold.—Over the ten-year period 1952-61, Canada's annual gold production has fluctuated narrowly between 4,000,000 oz.t. and 4,600,000 oz.t., and its value between \$140,000,000 and \$157,000,000. Estimates for 1961 show a moderate decrease from the high point of 1960. All producing provinces except Newfoundland, Quebec and Manitoba, as well as the Yukon and Northwest Territories recorded lower production during the year. Ontario produced 58.7 p.c. of Canada's gold output in 1961, Quebec 23.8 p.c., the Northwest Territories 9.1 p.c. and British Columbia 3.6 p.c. Canada produces about 11 p.c. of the world's output and ranks as the second largest producer, following the Union of South Africa.

14.—Quantity and Value of Gold Produced, by Province, 1952-61

NOTE.—Values are calculated at world prices in Canadian funds. Figures from 1862 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Newfoundland		Nova Scotia		Quebec		Ontario	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	\$	oz.t.	\$	oz.t.	\$	oz.t.	\$
1952.....	8,595	294,551	1,433	49,109	1,113,204	38,149,501	2,513,691	86,144,190
1953.....	7,654	263,451	3,248	111,796	1,021,698	35,166,845	2,182,437	75,119,481
1954.....	6,528	222,409	3,754	127,899	1,098,570	37,428,280	2,361,385	80,452,387
1955.....	6,337	218,753	3,880	133,938	1,154,522	39,854,099	2,523,040	87,095,340
1956.....	8,213	282,938	1,279	44,061	1,036,059	35,692,233	2,513,912	86,604,268
1957.....	9,755	327,280	45	1,510	1,006,895	33,781,327	2,578,206	86,498,811
1958.....	13,381	454,686	131	4,451	1,044,846	35,503,867	2,716,514	92,307,146
1959.....	13,411	450,207	—	—	999,388	33,549,455	2,683,449	90,083,383
1960.....	13,515	458,834	3	102	1,035,914	35,169,280	2,732,673	92,774,248
1961 ^a	15,470	548,257	—	—	1,052,588	37,303,719	2,597,289	92,047,922

14.—Quantity and Value of Gold Produced, by Province, 1952-61—concluded

Year	Manitoba		Saskatchewan		Alberta		British Columbia	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	\$	oz.t.	\$	oz.t.	\$	oz.t.	\$
1952.....	141,947	4,864,524	93,585	3,207,158	111	3,804	273,059	9,357,732
1953.....	131,309	4,519,656	88,327	3,046,215	65	2,237	261,976	9,120,474
1954.....	134,944	4,597,542	101,785	3,467,815	195	6,644	268,508	9,148,068
1955.....	123,888	4,276,614	83,580	2,885,182	214	7,387	252,979	8,732,835
1956.....	120,232	4,141,992	82,687	2,848,567	119	4,100	196,692	6,776,040
1957.....	120,008	4,026,268	75,236	2,524,168	416	13,957	229,113	7,686,741
1958.....	87,356	2,968,357	86,590	2,942,328	282	9,582	210,612	7,156,596
1959.....	51,186	1,718,314	78,588	2,638,199	200	6,714	184,312	6,187,354
1960.....	52,762	1,791,270	84,775	2,878,111	191	6,484	212,859	7,226,563
1961 ¹	56,753	2,011,326	73,898	2,618,945	171	6,060	159,296	5,645,450

Year	Northwest Territories		Yukon Territory		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value
	oz.t.	\$	oz.t.	\$	oz.t.	\$
1952.....	247,581	8,484,601	78,519	2,690,846	4,471,725	153,246,016
1953.....	289,929	9,979,356	66,080	2,274,474	4,055,723	139,597,985
1954.....	308,563	10,512,741	82,208	2,800,826	4,366,440	148,764,611
1955.....	321,321	11,092,001	72,201	2,492,379	4,541,962	156,788,528
1956.....	352,669	12,149,447	72,001	2,480,434	4,383,863	151,024,080
1957.....	340,018	11,407,604	73,962	2,481,425	4,433,894 ¹	148,757,143 ¹
1958.....	343,838	11,683,615	67,745	2,301,975	4,571,347 ¹	155,334,370 ¹
1959.....	405,922	13,626,802	66,960	2,247,847	4,483,416	150,508,275
1960.....	418,104	14,194,631	78,115	2,652,004	4,628,911	157,151,527
1961 ¹	402,580	14,267,435	67,775	2,401,946	4,425,820	156,851,060

¹ Includes 240 oz.t. of gold valued at \$8,052 produced in New Brunswick.
valued at \$1,767 produced in New Brunswick.

² Includes 52 oz.t. of gold

Zinc.—The estimated production of zinc (including refined zinc, zinc ores and concentrates) in 1961 showed considerable improvement over 1960 and the low point of 1959. British Columbia accounts for almost half the Canadian production—47.1 p.c. in 1961. Ontario was second in that year with 12.7 p.c., followed in order by Quebec, Manitoba, Newfoundland, Saskatchewan and the Yukon Territory. However, the major contribution to the increased production in 1961 was made by Manitoba.

15.—Quantity and Value of Zinc Produced, 1952-61

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Quantity ¹	Value	Average Price per lb.	Year	Quantity ¹	Value	Average Price per lb.
	tons	\$	cts.		tons	\$	cts.
1952.....	371,802	129,833,285	17.46	1957.....	413,740	100,042,533	12.09
1953.....	401,762	96,101,386	11.96	1958.....	425,089	92,501,496	10.88
1954.....	376,491	90,207,285	11.98	1959.....	386,008	96,942,663	12.24
1955.....	433,357	118,306,466	13.65	1960.....	406,873	108,635,003	13.35
1956.....	422,642	126,437,344	14.84	1961 ¹	412,363	103,781,801	12.58

¹ Estimated foreign smelter recoveries and refined zinc produced in Canada.

Lead.—Lead production in 1961 in the form of refined pig and recoverable lead in ore and concentrates was moderately higher than in 1960. Of the total production, British Columbia accounted for 191,189 tons, or 82.7 p.c. The only lead refinery in Canada is located in that province at Trail. Silver-lead ores are mined at Keno Hill in Yukon Territory and lead also occurs in the complex ores at Buchans in Newfoundland. Small amounts of lead concentrates are produced in Quebec and Ontario.

16.—Quantity and Value of Lead Produced from Canadian Ores, 1952-61

NOTE.—Figures from 1887 are given in the corresponding table of previous Year Books beginning with the 1929 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1952.....	168,842	54,671,021	1957.....	181,484	50,670,407
1953.....	193,706	50,076,822	1958.....	186,680	42,413,805
1954.....	218,495	58,250,831	1959.....	186,696	39,616,835
1955.....	202,762	58,314,500	1960.....	205,650	43,926,888
1956.....	188,854	58,582,651	1961 ^p	231,197	47,395,393

Silver.—Silver production in 1961 decreased 6.0 p.c. from the record amount produced in 1960. Nova Scotia, Manitoba and British Columbia produced higher amounts but these were offset by substantial reductions in the other producing provinces and the Territories. Production of this metal is fairly widespread across Canada, being recovered mainly as a by-product in the treatment of gold ores and ores of copper, lead, zinc, cobalt and nickel. A large part of Ontario's production of 9,160,685 oz.t. in 1961 originated in the silver-cobalt ores mined at Cobalt, and British Columbia produced 8,867,629 oz.t. from its silver-lead-zinc ores. Yukon Territory is the third largest producer, followed by Quebec. Canada's annual output of silver is exceeded only by that of Mexico and the United States.

17.—Quantity of Silver Produced, by Province, and Total Value, 1952-61

NOTE.—Figures from 1887 are given in the corresponding table of previous Year Books beginning with the 1916-17 edition.

Year	Average Price per oz.t. (Canadian funds)	Newfoundland	Nova Scotia	Quebec	Ontario	Manitoba
	cts.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1952.....	83.52	638,524	91,886	4,536,247	6,491,124	412,149
1953.....	84.01	648,389	226,225	4,571,373	5,154,619	429,508
1954.....	83.26	742,120	262,361	4,907,304	5,443,721	411,125
1955.....	88.18	701,792	262,067	4,786,695	6,051,017	454,528
1956.....	89.67	957,125	92,859	4,063,966	6,626,447	430,124
1957.....	87.37	1,196,414	1	3,645,856	6,910,130	407,834
1958.....	86.81	1,267,078	4	3,908,361	9,815,257	320,759
1959.....	87.78	1,125,110	—	4,108,241	10,540,856	373,827
1960.....	88.91	1,271,126	—	4,115,105	11,220,823	501,637
1961 ^p	94.02	1,103,900	23,750	4,014,516	9,160,685	741,614
	Saskatchewan	British Columbia	Northwest Territories	Yukon Territory	Canada ¹	
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	\$
1952.....	1,179,514	7,784,964	59,258	4,028,551	25,222,227	21,065,603
1953.....	1,257,622	9,308,874	63,592	6,639,127	28,299,335	23,774,271
1954.....	1,474,370	10,825,614	59,037	6,992,279	31,117,949	25,907,870
1955.....	1,230,179	8,702,122	58,477	5,712,219	27,984,204	24,676,472
1956.....	1,179,110	8,801,398	69,916	6,192,706	28,431,847	25,497,681
1957.....	1,145,571	8,584,991	69,104	6,484,185	28,823,298	25,182,915
1958.....	1,299,077	8,013,428	72,779	6,415,560	31,163,470	27,653,607
1959.....	1,187,439	7,463,285	70,560	7,054,632	31,923,969	28,022,860
1960.....	1,163,845	8,447,440	79,473	7,217,361	34,016,829	30,244,363
1961 ^p	897,145	8,867,629	75,568	7,096,386	31,981,210	30,068,733

¹ Includes relatively small quantities produced in New Brunswick and Alberta; there has been no silver produced in New Brunswick since 1958.

Metals of the Platinum Group.—Production in 1961 showed a substantial drop from the high point of 1960. The decrease in value amounted to 17.5 p.c. The whole production comes from the nickel-copper ores at Sudbury, Ont., and the metals are recovered in the form of residues in the electrolytic refinery tanks at Port Colborne, Ont., and at the refinery in Norway to which the Falconbridge Nickel Company Limited ships nickel-copper matte.

18.—Quantity and Value of the Platinum Group¹ Produced, 1952-61

NOTE.—Figures from 1921 are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year	Quantity	Value	Year	Quantity	Value
	oz.t.	\$		oz.t.	\$
1952.....	279,724	18,475,901	1957.....	416,147	25,731,333
1953.....	303,563	20,046,390	1958.....	300,458	14,321,443
1954.....	343,706	20,906,556	1959.....	328,095	16,932,438
1955.....	384,746	23,069,365	1960.....	483,604	28,873,508
1956.....	314,808	22,407,090	1961 ¹	404,883	23,829,172

¹ Includes platinum, iridium, rhodium, ruthenium and palladium.

Subsection 4.—Production of Non-metallic Minerals (excluding Fuels)

Asbestos is by far the most important item in this group in point of value, followed by salt, titanium dioxide, gypsum, peat moss and sulphur. Asbestos, salt, gypsum and sulphur are discussed separately below. Titanium dioxide is produced only in Quebec and peat moss, although included as a non-metallic mineral, consists of the dead fibrous moss produced from peat bogs. Its growing use as a soil conditioner, as poultry and stable litter and as packaging material resulted in shipments valued at nearly \$6,000,000 in 1961, double the shipments of 1954. The quantity and value of other non-metallic minerals produced are shown in Table 5, p. 519. See also the review of developments in the industrial mineral field at pp. 493-496.

Asbestos.—In 1961, Canadian asbestos mines shipped a record 1,171,000 tons valued at \$131,000,000, representing an increase of 4.7 p.c. in quantity and 8.0 p.c. in value over 1960. Quebec, with 12 producing mines, accounted for 93.8 p.c. of the total tonnage; Ontario's one mine produced 27,200 tons and British Columbia's one mine produced 45,773 tons.

19.—Quantity and Value of Asbestos Produced, 1952-61

NOTE.—Figures from 1896 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1952.....	929,339	89,254,913	1957.....	1,046,086	104,489,431
1953.....	911,226	86,052,895	1958.....	925,331	92,276,748
1954.....	924,116	86,409,212	1959.....	1,050,429	107,433,344
1955.....	1,063,802	96,191,317	1960.....	1,118,456	121,400,015
1956.....	1,014,249	99,859,969	1961 ¹	1,171,245	131,053,441

Salt.—The output of salt in 1961 was slightly below the record amount of 3,314,920 tons produced in 1960. The decline was more than accounted for by a 174,000-ton drop in Ontario's output; Ontario produces over 88 p.c. of the total tonnage. Rock salt is mined in Nova Scotia and Ontario only; brine wells are operated in Nova Scotia, Ontario, Manitoba, Saskatchewan and Alberta.

20.—Quantity of Salt Produced, by Province, and Total Value, 1952-61

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Nova Scotia	Ontario	Manitoba	Saskatch- ewan	Alberta	Canada	
	tons	tons	tons	tons	tons	tons	\$
1952.....	138,845	757,025	18,113	33,540	24,380	971,903	7,774,815
1953.....	127,819	749,046	18,078	35,100	24,885	954,928	6,974,501
1954.....	150,589	733,066	17,809	37,227	31,196	969,887	8,340,163
1955.....	144,862	998,789	18,954	40,748	41,408	1,244,761	10,122,299
1956.....	132,539	1,347,729	21,068	42,814	46,654	1,590,804	12,144,476
1957.....	122,763	1,538,805	19,372	43,684	46,935	1,771,559	13,989,703
1958.....	125,872	2,126,483	20,560	46,511	55,766	2,375,192	14,989,542
1959.....	120,225	3,036,230	23,547	48,776	61,198	3,289,976	18,034,522
1960.....	163,901	3,007,599	21,925	49,064	72,431	3,314,920	19,355,658
1961P.....	220,000	2,833,700	22,400	52,000	85,500	3,213,600	19,121,900

Gypsum.—Nova Scotia deposits provided more than 83 p.c. of the total output of gypsum in 1961. The decrease of 6.5 p.c. in the tonnage produced in that province and of 2.7 p.c. in New Brunswick compared with 1960 together with moderate increases in the other producing provinces resulted in a total output of 5,014,905 tons, down 14.7 p.c. from the record production of 1959. In Canada, gypsum is used in the manufacture of plaster and wallboard and is added to Portland cement to control setting, but the greater part of the output is exported in crude form to United States plants for processing.

21.—Quantity of Gypsum Produced, by Province, and Total Value, 1952-61

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Year	New- foundland	Nova Scotia	New Brunswick	Ontario	Manitoba	British Columbia	Canada	
	tons	tons	tons	tons	tons	tons	tons	\$
1952.....	8,660	2,969,312	110,183	278,992	130,934	92,702	3,590,783	6,538,074
1953.....	26,531	3,050,832	120,816	334,495	163,313	145,470	3,841,457	7,399,884
1954.....	26,653	3,168,134	88,856	357,432	162,037	147,310	3,950,422	7,094,671
1955.....	46,459	3,838,847	90,096	366,416	176,005	150,078	4,667,901	8,337,153
1956.....	37,000	4,144,147	86,104	366,956	185,986	75,618	4,895,811	7,260,236
1957.....	29,465	3,842,027	93,249	379,621	183,708	49,422	4,577,492	7,745,105
1958.....	36,307	3,149,719	105,749	425,733	176,123	70,498	3,964,129	5,189,159
1959.....	37,720	5,036,411	98,250	412,100	200,139	94,010	5,878,630	8,393,703
1960.....	34,346	4,490,427	90,892	355,603	122,063	112,400	5,205,731	9,498,711
1961P.....	37,500	4,197,360	88,400	415,000	130,000	146,645	5,014,905	9,098,571

Sulphur.—Figures in Table 22 represent the quantity and value of sulphur contained in derivatives from smelter gases such as sulphur dioxide, sulphuric acid, etc., and in pyrite and pyrrhotite shipments, as well as the quantity of sulphur refined from natural gas production. In Canada, sulphur is used in the treatment of sulphite pulps and in the manufacture of rayon, explosives, rubber goods, petroleum refining, matches and insecticides.

22.—Quantity and Value of Sulphur Produced from Smelter Gases and in Pyrite and Pyrrhotite Shipments, and Quantity of Elemental Sulphur Sales, 1952-61

Year	Sulphur in Smelter Gases		Producers' Shipments Pyrite and Pyrrhotite			Sales of Elemental Sulphur ¹
	Quantity	Value	Gross Weight	Sulphur Content	Value	Quantity
	tons	\$	tons	tons	\$	tons
1952.....	160,547 ²	1,605,470	553,987	263,241 ³	2,245,713	4,225
1953.....	172,200 ²	1,722,000	408,257	186,650 ³	1,450,698	16,072
1954.....	221,247 ²	2,212,470	687,923	311,159 ³	2,663,499	18,665
1955.....	224,457 ²	2,244,570	878,452	403,986 ³	3,740,383	25,976
1956.....	236,088 ²	2,323,590	1,046,740	473,605	4,538,785	34,784
1957.....	235,123 ²	2,322,067	1,166,416	515,096	4,808,228	93,338
1958.....	241,055 ²	2,361,252	1,191,731	512,427	4,248,668	94,877
1959.....	277,030 ²	2,716,416	1,099,564	..	3,423,095	145,656
1960.....	289,620 ²	2,854,623	1,032,288	..	3,316,378	274,359
1961P.....	311,211 ²	3,028,776	505,912 ⁴	..	1,493,546	396,286

¹ Recovered from sour natural gas and nickel sulphide ores. ² Does not include sulphur in acid made from roasting zinc sulphide concentrates at Arvida. ³ Includes sulphur in acid made from roasting zinc sulphide concentrates at Arvida and Port Maitland. ⁴ Excludes pyrite and pyrrhotite used to produce iron residue or sinter.

Subsection 5.—Production of Fuels

Coal.—The downward trend in the production of coal, in evidence for some time, was interrupted in 1960 but resumed again in 1961. All producing provinces with the exception of Saskatchewan and British Columbia showed some decrease in output. Imports continued to decline but exports recorded a considerable increase in 1961.

23.—Coal Production, by Province, 1952-61

NOTE.—Figures from 1974 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Nova Scotia	New Brunswick	Saskatchewan	Alberta	British Columbia	Yukon Territory	Canada	
	tons	tons	tons	tons	tons	tons	tons	\$
1952.....	5,905,265	742,823	2,083,465	7,194,757	1,644,250	8,442	17,579,002	111,026,149
1953.....	5,787,026	721,252	2,021,304	5,917,474	1,443,006	10,611	15,900,673	102,721,875
1954.....	5,842,896	781,271	2,116,740	4,859,049	1,299,510	14,113	14,913,579	96,600,266
1955.....	5,731,026	877,838	2,293,816	4,455,279	1,453,881	7,040	14,818,880	93,579,471
1956.....	5,775,025	988,266	2,341,641	4,328,787	1,472,519	9,372	14,915,610	95,349,763
1957.....	5,685,770	976,597	2,248,812	3,156,546	1,113,699	7,731	13,189,155	90,220,670
1958.....	5,269,879	790,719	2,253,176	2,519,901	849,091	4,344	11,687,110	79,963,327
1959.....	4,391,829	1,003,387	1,947,380	2,528,755	751,492	3,879	10,626,722	73,875,895
1960.....	4,570,240	1,028,064	2,170,797	2,391,699	843,868	6,470	11,011,138	74,676,240
1961.....	4,300,758	887,903	2,208,851	2,027,826	964,663	7,703	10,297,704	70,052,683

24.—Imports of Anthracite, Bituminous and Lignite Coal and Briquettes, 1952-61

NOTE.—Figures from 1968 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Anthracite ¹	Bituminous ²	Lignite	Briquettes ¹	Totals	
	tons	tons	tons	tons	tons	\$
1952.....	3,894,863	21,030,503	7,487	155,597	25,088,450	152,535,773
1953.....	2,989,054	20,273,425	3,062	128,673	23,394,214	138,168,829
1954.....	2,754,882	15,822,283	2,824	128,163	18,708,152	106,378,808
1955.....	2,646,503	17,094,480	1,548	124,216	19,866,747	108,087,269
1956.....	2,545,627	20,065,807	1,940	126,724	22,740,098	120,318,369
1957.....	1,925,498	17,548,585	2,166	73,306	19,549,555	118,581,708
1958.....	1,556,018	12,934,262	1,035	41,820	14,533,135	88,532,326
1959.....	1,603,909	12,621,429	10,780 ⁴	24,621	14,260,639	84,808,838
1960.....	1,297,467	12,250,832	16,537 ⁴	15,528	13,580,364	77,174,112
1961.....	1,058,157	11,237,629	10,712 ⁴	9,664	12,316,162	71,717,030

¹ Includes anthracite dust 1952-58.

² Includes coal ex-warehoused for ships' stores.

³ Coal or coke.

⁴ Beginning 1959 includes coal dust, ground coal and coal n.o.p.

25.—Exports of Domestic Coal, 1952-61

NOTE.—Figures from 1868 are given in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1952.....	388,960	3,203,522	1957.....	396,311	3,357,959
1953.....	255,274	1,999,908	1958.....	338,544	2,907,513
1954.....	219,346	1,716,435	1959.....	473,768	3,582,313
1955.....	592,782	4,870,598	1960.....	852,921	6,789,163
1956.....	594,166	4,710,030	1961.....	939,360	8,541,679

The amounts and percentages of domestic and imported coal apparently consumed in Canada in the years 1952-61 are shown in Table 26. The imports represent amounts taken out of bond for consumption during the respective years, regardless of when received. Thus the totals are exclusive of coal landed at Canadian ports and re-exported or ex-warehoused for ships' stores without being taken out of bond. However, since such coal while remaining in bond at the port is available for Canadian consumption if required, the total amount of coal made available for consumption in Canada in 1961 amounted to 21,669,560 tons, including 985,217 tons of anthracite, 17,114,562 tons of bituminous, 1,360,930 tons of subbituminous, and 2,208,851 tons of lignite.

26.—Consumption of Canadian and Imported Coal in Canada, 1952-61

NOTE.—Figures from 1866 are given in the corresponding table of previous Year Books beginning with the 1921 edition.

Year	Canadian Coal ¹		Imported Coal 'Entered for Consumption' ²				Grand Total	Consumption per Capita
			From United States	From Britain	Total ³			
	tons	p.c.	tons	tons	tons	p.c.	tons	tons
1952.....	16,749,416	40.5	24,248,804	356,032	24,603,789	59.5	41,353,205	2.87
1953.....	15,240,105	40.0	22,548,793	352,383	22,900,392	60.0	38,140,497	2.58
1954.....	14,466,212	44.0	18,054,962	266,304	18,322,056	56.0	32,788,268	2.16
1955.....	14,060,039	42.1	19,053,434	269,898	19,322,134	57.9	33,382,173	2.14
1956.....	14,115,095	38.9	22,045,485	153,404	22,198,049	61.1	36,313,144	2.26
1957.....	12,478,626	39.6	18,910,544 ^r	134,671	19,041,030 ^r	60.4	31,519,656 ^r	1.90
1958.....	11,054,757	43.9	14,089,557	65,275	14,154,121	56.1	25,208,878	1.48
1959.....	10,589,263	43.1	13,861,676	96,814	13,958,996	56.9	24,548,259	1.41
1960.....	9,973,308	42.9	13,211,493	65,375	13,276,599	57.1	23,249,907	1.31
1961.....	9,572,805	44.3	12,253,272	53,226	12,057,086	55.7	21,629,891	1.19

¹ The sum of Canadian coal mines' sales, colliery consumption, coal supplied to employees and coal used in making coke, etc., less the tonnage of coal exported.

² Imports of briquettes are not included in this table but are shown separately in Table 24.

³ Includes small tonnages from countries other than Britain and the United States. Deductions have been made from this column to take account of foreign coal re-exported from Canada and bituminous coal ex-warehoused for ships' stores.

Petroleum.—The upward climb of crude petroleum production in evidence since the discovery of the Leduc field in Alberta in 1947 halted temporarily in 1958 but resumed in 1959 and continued in 1960 and 1961. Production in the latter year reached a record level, 16.3 p.c. above the previous peak in 1960. The increase in 1961 over 1960 was mainly accounted for by a more than 27,000,000-bbl. increase in Alberta.

27.—Quantity and Value of Crude Petroleum Produced, by Province, 1952-61

NOTE.—Figures from 1936 are given in the corresponding table of previous Year Books beginning with the 1948-49 edition.

Year	New Brunswick		Ontario		Manitoba		Saskatchewan	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1952.....	14,237	19,932	191,814	641,037	104,826	229,299	1,696,505	2,256,352
1953.....	14,738	20,633	299,685	994,835	653,514	1,714,806	2,797,888	3,833,107
1954.....	13,046	18,265	412,474	1,391,687	2,148,184	5,619,649	5,422,899	8,183,304
1955.....	12,548	17,567	525,510	1,599,335	4,145,756	9,618,154	11,317,168	18,317,968
1956.....	16,628	23,279	593,370	1,958,121	5,786,540	13,633,088	21,077,371	36,253,078
1957.....	19,401	27,161	623,666	2,160,000	6,089,743	15,467,947	36,861,089	79,325,064
1958.....	15,189	21,265	778,341	2,623,000	5,829,226	14,415,676	44,626,148	96,704,863
1959.....	14,479	20,271	1,001,580	3,194,000	5,056,075	11,619,872	47,442,498	97,731,546
1960.....	14,148	19,807	1,005,030	3,150,065	4,764,045	10,690,384	51,908,428	103,957,009
1961 ^a	12,100	16,950	1,152,000	3,551,000	4,485,000	10,200,000	56,000,000	116,800,000
Alberta			British Columbia		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1952.....	58,915,723	139,512,432	—	—	314,217	379,160	61,237,322	143,038,212
1953.....	76,816,383	193,761,644	—	—	316,689	257,251	80,898,897	200,582,276
1954.....	87,713,855	228,319,165	—	—	369,887	344,960	96,080,345	243,877,030
1955.....	113,035,046	274,901,232	—	—	404,219	1,185,780	129,440,247	205,640,036
1956.....	143,909,641	353,629,158	148,454	302,375	449,409	762,773	171,981,413	406,561,872
1957.....	137,492,316	355,555,140	340,945	763,717	420,844	294,591	181,848,004	453,593,620
1958.....	113,277,847	283,282,592	512,359	1,022,156	457,086	698,266	165,496,196	398,747,818
1959.....	129,967,312	306,917,803	866,234	1,583,129	430,319	1,025,914	184,778,497	422,092,535
1960.....	130,506,968	302,841,423	867,057	1,626,590	468,545	641,219	189,534,221	422,926,497
1961 ^a	157,650,000	354,712,500	658,962	1,335,785	502,500	688,425	220,460,562	487,304,660

Natural Gas.—The output of natural gas continued to increase at a rapid rate in Alberta and British Columbia. Total Canadian shipments, which amounted to 150,772,000 Mcf. in 1955 reached a high of 646,018,000 Mcf. in 1961, 498,000,000 Mcf. of which came from Alberta. A review of developments in the natural gas industry is given at pp. 496-497.

28.—Quantities of Natural Gas Produced, by Province, and Total Value, 1952-61

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1940 edition.

Year	New Brunswick	Ontario	Saskatchewan	Alberta	British Columbia	Northwest Territories	Canada	
	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	Mcf.	\$
1952.....	202,042	8,302,190	1,007,491	79,149,895	—	24,847	88,686,465	9,517,638
1953.....	177,112	9,708,969	1,422,128	89,651,605	—	26,109	100,985,923	10,877,017
1954.....	183,457	10,015,818	3,333,077	107,173,777	—	29,085	120,735,214	12,482,109
1955.....	186,549	10,852,857	6,706,743	133,007,493	—	18,670	150,772,312	15,098,508
1956.....	190,322	12,811,618	9,807,697	146,133,893	187,846	21,210	169,152,586	16,849,556
1957.....	176,417	14,400,913	13,994,347	183,140,820	8,274,942	19,243	220,006,682	20,962,501
1958.....	123,957	16,147,986	18,819,795	239,049,591	63,638,297	24,100	337,803,726	32,057,536
1959.....	117,502	16,839,236	33,612,966	297,568,926	69,128,708	67,189	417,334,527	39,609,293
1960.....	98,701	16,987,056	36,571,633	383,682,986	85,592,166	39,785	522,972,327	52,196,882
1961 ^a	95,750	18,500,000	35,000,000	497,925,000	94,462,454	35,000	646,018,204	63,607,157

Subsection 6.—Production of Structural Materials

Active construction throughout Canada has kept production of structural materials at a high level in recent years. After a slight decrease in 1960 the value of such materials produced reached \$323,092,906 in 1961. In point of value, sand and gravel is the most important of the structural materials, followed by cement, stone, clay products and lime. Developments in certain structural materials industries during 1961 are covered in the review at p. 494.

Sand and Gravel.—Deposits of sand and gravel are numerous throughout Eastern Canada, with the exception of Prince Edward Island where gravels are scarce. The local needs for these materials are usually supplied from the nearest deposits as their cost to the consumer is governed largely by the length of haul. This accounts for the large number of small pits and the small number of large plants in operation. Every province except New Brunswick and Prince Edward Island produces natural bonded sand but some grades particularly suitable for certain industries command much higher prices than ordinary sand. The greater part of the sand and gravel output is used in road improvement, concrete works, or as railway ballast and most of the commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone.

In 1961 an estimated 178,500,000 tons of sand and gravel were produced, valued at \$106,413,509. This represented a decrease of 7.1 p.c. in quantity and 4.3 p.c. in value from 1960. Quebec and Ontario together contributed 67.6 p.c. of the quantity. The breakdown of these totals by purpose was not available at the time of going to press.

29.—Quantity and Value of Sand, and Sand and Gravel Produced, 1958-60

Material and Purpose	1958		1959		1960	
	Quantity	Gross Value	Quantity	Gross Value	Quantity	Gross Value
	tons	\$	tons	\$	tons	\$
Sand—						
Moulding sand.....	21,346	98,179	1	1	1	1
For building, concrete, roads, etc..	13,232,445	11,902,625	15,556,197	13,325,181	16,075,366	12,996,753
Other.....	313,391	171,691	177,977	107,073	561,896	398,981
Sand and Gravel—						
For railway ballast.....	8,373,117	3,624,978	8,303,445	2,836,993	137,594,684	68,857,398
For concrete, roads, etc.....	106,229,805	55,362,687	128,056,334	61,874,585	7,765,514	3,960,814
For mine filling.....	4,233,347	2,042,032	2,611,603	798,510	2,558,262	1,117,099
Crushed gravel.....	27,807,494	23,080,171	30,418,190	25,709,119	27,518,776	23,832,841
Totals, Sand and Gravel.....	160,210,945	96,282,363	185,123,746	104,651,461	192,074,498	111,163,886

¹ Included under feldspar and quartz in 1959 and 1960.

Cement.—The production of cement in Canada reached its peak in 1959, output in 1961 being down 2.2 p.c. from that point. However, consumption was up in 1961 by 4.8 p.c., continuing the almost steadily upward trend in evidence throughout the postwar period. Of the Canadian total of 6,145,168 tons produced in 1961, Ontario contributed 36.1 p.c. and Quebec 32.5 p.c. and all other provinces except Prince Edward Island and Nova Scotia contributed varying amounts; output increases in 1961 took place in Ontario, Quebec, Saskatchewan, British Columbia, Alberta and New Brunswick.

30.—Quantity and Value of Production, Imports, Exports and Apparent Consumption of Cement, 1952-61

NOTE.—Figures from 1910 are given in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Shipments (sold or used)		Imports	Exports	Apparent Consumption ¹
	tons	\$	tons	tons	tons
1952.....	3,241,095	48,059,470	509,947	754	3,750,288
1953.....	3,891,708	58,842,022	434,487	2,577	4,323,618
1954.....	3,926,553 ^r	59,035,644	401,135	21,638	4,306,050 ^r
1955.....	4,404,480	65,650,025	517,890	168,907	4,753,463
1956.....	5,021,683	75,233,321 ^r	677,616 ^r	124,561	5,574,738
1957.....	6,049,098	93,167,477	92,380	338,316 ^r	5,803,162 ^r
1958.....	6,153,421	96,414,142	41,550 ^r	141,250	6,053,721 ^r
1959.....	6,284,486	95,147,798	29,256	303,126	6,010,616
1960.....	5,787,225	93,261,473	22,478	181,117	5,628,586
1961 ^p	6,145,168	100,692,169	1,381	249,377	5,897,172

¹ Shipments plus imports less exports.

^r Includes imported clinker, other than white.

Stone. The stone industry has two main divisions—stone quarrying and the stone products industry. The granite, limestone, marble, sandstone and slate quarries of Canada yield high-grade structural and decorative materials and also supply requirements for chemical and other allied industries. The gross value of stone of all varieties produced in Canada in each of the years 1958-60 was estimated at approximately \$61,000,000. Details for 1961 were not available at time of going to press.

31.—Quantity and Value of Stone Produced, 1958-60

Type	1958		1959		1960	
	Quantity	Gross Value	Quantity	Gross Value	Quantity	Gross Value
	tons	\$	tons	\$	tons	\$
Building.....	145,229	6,114,234	144,199	5,333,418	163,602	4,207,535
Monumental and ornamental.....	16,147	1,224,532	15,881	1,086,407	20,092	1,165,662
Stone for agriculture.....	696,437	1,790,169	727,142	1,966,332	896,377	2,270,512
Chemical Uses—						
Flux.....	1,116,163	1,337,133	1,394,840	1,682,897	1,327,551	1,629,487
Pulp and paper.....	340,750	1,093,517	375,823	1,169,780	437,614	1,403,734
Other.....	884,873	956,797	1,052,184	1,192,586	866,414	900,737
Rubble and riprap.....	2,479,319	2,597,157	1,853,803	2,128,901	1,770,089	1,913,810
Crushed.....	32,200,191	38,829,823	40,480,688	44,636,226	39,259,416	44,886,886
Totals¹	38,156,647	55,582,929	46,439,535	60,958,784	45,359,449	60,640,621

¹ Includes minor items not specified.

Clay Products.—The sales value of clay products produced in 1961 was 10.5 p.c. lower than the peak production of 1959. Common clays suitable for the production of building bricks and tile are found in all the provinces; production is greatest in Ontario and Quebec. Stoneware clays are produced largely from the Eastend and Willows areas in Saskatchewan and shipped to Medicine Hat, Alta., where, utilizing the cheap gas fuel, they are manufactured into stoneware, sewer pipe, pottery, tableware, etc. Stoneware clay also occurs in Nova Scotia and, although it has not been developed extensively for ceramic use, some is used for pottery. Two large plants and a few small plants manufacture fireclay refractories from domestic clay in British Columbia, Saskatchewan and Nova Scotia. Deposits of high-grade, plastic, white burning clays occur in northern

Ontario and deposits yielding high-grade china clay have been found along the Fraser River in British Columbia but these have not been used on a commercial scale, nor have the ball clays of high bond strength occurring in the white mud beds of southern Saskatchewan been developed to any extent.

32.—Value (Total Sales) of Clay Products Produced, by Province, 1952-61

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario
	\$	\$	\$	\$	\$
1952.....	29,285	1,221,893	655,084	6,645,387	11,975,200
1953.....	39,500	1,234,319	620,769	8,070,942	14,829,222
1954.....	33,042	1,082,039	587,994	8,055,692	17,280,281
1955.....	49,338	1,196,968	704,025	8,451,362	18,314,320
1956.....	47,145	1,196,868	975,855	9,415,703	19,173,336
1957.....	29,500	1,345,361	803,169	8,898,855	18,353,299
1958.....	58,282	1,509,536	629,921	10,675,463	22,786,291
1959.....	68,000	1,638,789	743,966	10,374,162	22,174,895
1960.....	83,435	1,673,618	705,366	8,093,038	20,191,325
1961P.....	70,000	1,594,875	812,017	8,283,413	19,774,288
	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
	\$	\$	\$	\$	\$
1952.....	575,088	711,778	1,964,618	1,183,195	24,961,528
1953.....	568,477	742,959	2,135,085	1,536,458	29,777,731
1954.....	512,989	844,398	2,316,982	1,696,731	32,360,098
1955.....	635,554	992,307	2,800,481	2,115,415	35,229,770
1956.....	754,503	1,054,071	3,038,544	2,128,955	37,784,980
1957.....	827,697	1,015,389	2,628,187	2,020,701	35,922,158
1958.....	682,943	1,158,803	2,569,170	1,639,494	41,709,903
1959.....	618,550	1,374,834	3,572,920	1,949,332	42,515,448
1960.....	813,135	1,130,332	3,551,682	1,984,607	38,226,538
1961P.....	661,420	1,096,800	3,746,942	2,005,650	38,045,405

Section 5.—Industrial Statistics of the Mineral Industry

The scope of the annual statistics on mineral production published by the Dominion Bureau of Statistics includes a general review of the principal mineral industries such as the copper-gold, silver-lead-zinc, and nickel-copper industries as well as a section on metallurgical works. Additional data published at irregular intervals include such features as numbers of employees, salaries and wages paid and net value added by processing.

The figures for 'net value added by processing' of industries given in Tables 33 and 34 are, in each table, the settlements received for shipments by producers and the additional values obtained when the smelting of ores is completed in Canada, less the cost of materials, fuel, etc. The totals indicate more nearly the actual returns to the different industries than do the values for the minerals in Table 5, p. 519 where, with respect to copper, lead, zinc and silver, values are computed by applying the average prices for the year in the principal metal markets to the total production from mines and smelters with no reduction for fuel, electricity and other supplies consumed in the production process.

Some imported ores and concentrates are treated in Canadian non-ferrous smelting and refining works, especially in the production of aluminum, where imported ore only is used, and of cobalt which is derived mainly from African ores. The net shipments of these plants include, therefore, the net value of the metals recovered from these imported ores and to this extent the net values added shown in Tables 33 and 34 include products of other than Canadian origin.

33.—Summary Statistics of the Mineral Industry, by Province, 1960

NOTE.—The figures given in this table for 1960 are not comparable with those given for earlier years in previous editions of the Year Book because of the use of a different method of compilation.

Province or Territory	Plants or Estab- lishments	Em- ployees	Salaries and Wages	Cost of Process Supplies, Fuel, Electricity, Freight and Smelter Charges	Net Value Added by Processing
	No.	No.	\$	\$	\$
Newfoundland.....	23	4,150	19,561,532	29,859,963	50,441,595
Prince Edward Island.....	5	21	41,081	21,039	95,676
Nova Scotia.....	70	9,226	30,124,520	13,575,891	47,199,604
New Brunswick.....	72	1,649	5,317,040	4,497,260	11,069,269
Quebec.....	1,959	35,747	170,161,179	602,114,655	447,876,323
Ontario.....	835	54,020	263,231,207	513,538,212	745,583,481
Manitoba.....	101 ¹	3,307	15,642,582	17,851,199	35,042,872
Saskatchewan.....	192 ¹	4,859	25,624,175	34,130,852	180,766,391
Alberta.....	331	8,094	38,649,877	48,803,620	375,022,306
British Columbia.....	256	12,441	63,093,258	156,614,964	165,289,621
Northwest Territories.....	16	1,056	6,344,215	3,533,968	22,445,908
Yukon Territory.....	35	743	4,369,445	4,584,737	6,679,286
Canada.....	3,894	135,313	642,160,111	1,429,126,360	2,087,512,332

¹ One plant on the border between Manitoba and Saskatchewan credited to both provinces.

A summary of the industrial statistics of the principal mineral industries operating in Canada in the year 1960 is presented in Table 34.

34.—Summary Statistics of the Principal Mineral Industries, 1960

NOTE.—The figures given in this table for 1960 are not comparable with those given for earlier years in previous editions of the Year Book because of the use of a different method of compilation.

Industry	Plants or Estab- lishments	Em- ployees	Salaries and Wages	Cost of Process Supplies, Fuel, Electricity, Freight and Smelter Charges	Net Value Added by Processing
	No.	No.	\$	\$	\$
Metallics.....	678	61,882	308,042,608	297,637,196	706,058,535
Placer gold.....	32	213	1,224,907	473,158	2,285,126
Gold quartz.....	146	16,542	66,552,906	31,600,676	103,748,507
Copper-gold-silver.....	277	10,549	48,940,982	68,499,418	103,754,616
Silver-cobalt.....	7	520	2,077,281	1,116,429	4,526,714
Silver-lead-zinc.....	47	4,215	21,304,035	50,609,185	61,377,333
Nickel-copper.....	39	12,709	67,504,099	28,050,603	99,161,815
Iron.....	62	7,754	45,985,190	68,360,367	106,722,156
Miscellaneous metals.....	68	9,380	54,453,208	48,927,360	224,482,268
Non-metallics.....	205	11,206	49,545,887	33,049,351	148,972,355
Asbestos.....	24	6,688	33,057,847	21,021,558	104,215,344
Feldspar, quartz and nepheline syenite.....	34	450	1,815,822	1,123,393	5,396,568
Gypsum.....	14	791	2,916,355	1,059,407	8,439,304
Mica.....	29	21	38,022	7,760	88,237
Peat.....	40	1,172	3,060,511	2,143,029	5,794,026
Salt.....	14	892	3,873,168	4,421,992	16,972,107
Talc and soapstone.....	4	70	235,373	99,259	466,260
Miscellaneous non-metallics.....	46	1,122	4,548,789	3,172,953	7,600,509

34.—Summary Statistics of the Principal Mineral Industries, 1960—concluded

Industry	Plants or Estab- lishments	Em- ployees	Salaries and Wages	Cost of Process Supplies, Fuel, Electricity, Freight and Smelter Charges	Net Value Added by Processing
	No.	No.	\$	\$	\$
Fuels	796	17,627	70,506,746	60,258,894	530,878,829
Coal.....	129	11,587	38,734,884	16,034,065	58,642,175
Natural gas processing.....	30	669	3,790,433	26,912,351	18,850,529
Petroleum and natural gas.....	637	5,371	27,981,429	17,312,478	453,386,125
Structural Materials	2,034	6,856	25,807,366	12,425,085	84,497,174
Sand and gravel.....	1,769	3,281	12,532,183	4,471,858	48,071,323
Stone.....	265	3,575	13,275,183	7,953,228	36,425,851
Manufacturing Group	181	37,742	188,257,504	1,025,755,833	617,105,439
Smelting and refining.....	23	29,708	153,682,338	987,647,500	507,530,017
Clay products.....	113	3,778	14,167,660	6,963,705	31,944,022
Cement.....	20	3,306	16,463,617	27,259,425	69,616,378
Lime.....	25	950	3,943,889	3,885,203	8,015,022
Grand Totals	3,894	135,313	642,160,111	1,429,126,360	2,087,512,332

Section 6.—World Production of Certain Metallic Minerals and Fuels

Table 35 shows the production of certain metallic minerals and fuels in the different countries of the world for the year 1960. These figures are taken from the *United Nations Statistical Yearbook 1961* which presents production figures for a much more extensive list of mining and quarrying industries. The 1960 figures are provisional and have been converted from kilograms to ounces troy for gold, from metric tons to ounces troy for silver, and from metric tons to short tons for the other metals and fuels shown.

35.—World Production of Certain Metallic Minerals and Fuels, 1960

NOTE.—Where dashes occur throughout this table they indicate that no figures were given in the *United Nations Statistical Yearbook* either because there was no production or because the quantity was not available.

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petro- leum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Afghanistan.....	—	—	—	—	—	—	52.9	—
Albania.....	—	—	—	—	—	—	—	664.7
Algeria.....	—	—	0.1	1,970.9	11.6	43.3	120.1	9,690.4
Angola.....	—	—	2.1	461.9	—	—	—	73.9
Argentina.....	—	—	—	—	—	38.1	309.7	10,097.2
Australia.....	1,080.2	—	122.4	3,161.5	344.5	325.1	25,279.3	—
Austria.....	—	—	2.2	1,212.5	6.4	9.8	145.5	2,698.5
Bahrain.....	—	—	—	—	—	—	—	2,486.8
Bechuanaland.....	0.2	—	—	—	—	—	—	—
Belgium.....	—	—	—	52.9	—	—	24,763.4	—
Bolivia.....	26.8	4,886.9 ¹	2.5 ¹	—	23.6 ¹	4.4 ¹	—	457.5
Brazil.....	—	—	—	3,939.7	—	—	2,565.1	4,265.9
Britain.....	—	—	—	5,166.5	1.7	—	216,951.3 ²	162.0
British Guiana.....	2.2	—	—	—	—	—	—	—
Brunei.....	—	—	—	—	—	—	—	5,051.9
Bulgaria.....	—	—	12.1	207.2	104.5	84.9	639.3	220.5
Burma.....	—	1,501.4	0.2	—	19.8	11.4	—	600.8
Cameroun.....	0.4	—	—	—	—	—	—	—

For footnotes, see end of table, p. 541.

35.—World Production of Certain Metallic Minerals and Fuels, 1960—continued

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Canada ²	4,628.9	34,016.8	439.3	21,550.8	205.7	406.9	11,011.1	25,613.5
Chile.....	109.1	1,433.9	585.5	3,293.7	1.7	1.0	1,492.5	1,039.5
China—								
Mainland.....	—	—	—	—	—	—	462,970.6	—
Taiwan.....	15.7	—	2.3	—	—	—	4,367.4	2.2
Colombia.....	433.9	135.0	—	196.2	—	—	2,976.2	8,459.1
Congo—								
Brazzaville.....	—	—	—	—	4.7	—	—	56.2
Leopoldville.....	—	—	330.7	—	—	120.3	195.1	—
Cuba.....	—	—	8.0	—	—	—	—	15.4
Cyprus.....	—	—	35.1	—	—	—	—	—
Czechoslovakia.....	—	—	—	1,045.0	—	—	28,896.0	151.0
Dominican Republic.....	—	—	—	90.4	—	—	—	—
Ecuador.....	15.2	125.4	—	—	—	—	—	401.2
El Salvador.....	1.0	70.7	—	—	—	—	—	—
Ethiopia (incl. Eritrea).....	15.4	—	—	—	—	—	—	—
Fiji Islands.....	72.2	—	—	15.4	—	—	—	—
Finland.....	21.7	389.0	33.6	198.4	2.5	56.1	—	—
France.....	—	—	—	23,969.8	21.6	19.1	61,690.8	2,187.0
French Equatorial Africa.....	19.2	—	—	—	—	—	—	—
French Guiana.....	22.9 ¹	—	—	—	—	—	—	—
Gabon.....	—	—	—	—	—	—	—	881.8
Germany—								
Eastern.....	—	—	28.7	474.0	—	—	2,999.4	—
Federal Republic of.....	84.6	14,474.3	2.0	—	—	—	—	—
Saar.....	—	—	—	5,024.3	55.0	95.1	157,856.4	6,095.8
Ghana.....	879.0	—	—	—	—	—	—	—
Greece.....	2.9	106.1	—	—	—	—	—	—
Greenland.....	—	—	—	—	—	—	—	—
Guatemala.....	—	—	—	—	7.6	11.1	33.1	—
Guatemala.....	—	—	—	—	9.5	11.0	—	—
Honduras.....	2.3 ¹	3.2 ¹	—	—	6.0	4.7 ⁴	—	—
Hong Kong.....	—	—	—	71.7	—	—	—	—
Hungary.....	—	—	—	151.0	—	—	3,138.3	1,340.4
India.....	160.6	131.8	10.4	7,165.0	5.1	6.3	58,066.4	494.9
Indonesia.....	—	—	—	—	—	—	725.3	22,703.2
Iran.....	—	—	—	—	—	—	215.0	57,540.6
Iraq.....	—	—	—	—	—	—	—	52,314.6
Ireland.....	—	—	6.7	—	1.5	1.4	259.0	—
Israel.....	—	—	—	—	—	—	—	140.0
Italy.....	2.8	945.2	0.6	686.7	54.1	148.7	812.4	2,202.4
Japan.....	336.0	10,420.1	98.3	1,735.0	43.5	172.7	56,291.7	579.8
Kenya.....	8.6	—	—	—	—	—	—	—
Korea—								
North.....	—	—	—	—	—	—	11,684.5	—
Republic of.....	65.8	331.2	0.4	220.5	1.0	—	5,897.4	—
Kuwait.....	—	—	—	—	—	—	—	90,238.5
Kuwait (neutral zone).....	—	—	—	—	—	—	—	8,035.8
Liberia.....	1.0 ¹	—	—	2,346.8	—	—	—	—
Luxembourg.....	—	—	—	2,123.1	—	—	—	—
Malaya, Federation of.....	18.6	—	—	3,537.3	—	—	—	—
Mexico.....	293.8	44,528.8	66.5	574.3	210.2	289.2	1,953.3	15,822.6
Mongolia.....	—	—	—	—	—	—	683.4	—
Morocco.....	—	—	1.4	962.3	106.0	54.2	454.2	101.4
Mozambique.....	—	—	—	—	—	—	286.6	—
Netherlands.....	—	—	—	—	—	—	13,776.7	2,114.2
Netherlands New Guinea.....	—	—	—	—	—	—	—	234.8
New Zealand.....	33.3	—	—	1.1	—	—	895.1	1.1
Nicaragua.....	198.2 ¹	—	—	—	—	—	—	—
Nigeria.....	0.8	—	—	—	0.3	—	629.4	955.7
Norway.....	—	—	17.0	1,164.0	2.8	11.4	443.1	—
Pakistan.....	—	—	—	2.2	—	—	916.0	351.6
Peru.....	141.0	36,755.4	200.3	3,462.4	145.1	148.6	174.2	2,796.6
Philippines.....	410.6	527.3	48.5	697.8	0.1	5.5	162.0	—
Poland.....	—	—	11.8	670.2	43.2	158.7	115,123.2	213.8
Portugal.....	21.9	—	—	166.4	—	—	478.4	—
Portuguese India.....	—	—	—	2,171.6	—	—	—	—
Qatar.....	—	—	—	—	—	—	—	9,052.2
Rhodesia and Nyasaland, Federation of—								
Northern Rhodesia.....	5.5	697.7	625.0	—	16.2	33.4	—	—
Southern Rhodesia.....	562.7	392.2	14.9	101.4	—	—	3,923.1	—

For footnotes, see end of table.

35.—World Production of Certain Metallic Minerals and Fuels, 1960—concluded

Country	Gold	Silver	Copper	Iron	Lead	Zinc	Coal	Crude Petroleum
	'000 oz.t.	'000 oz.t.	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
Romania.....	—	—	—	514.8	13.2	—	4,939.5	12,676.6
Sarawak.....	3.3	—	—	—	—	—	—	66.1
Saudi Arabia.....	—	—	—	—	—	—	—	68,418.2
Sierra Leone.....	—	—	—	1,052.7	—	—	—	—
South Africa.....	21,383.6	2,224.8	50.4	2,166.0	0.1	—	42,117.1	—
South West Africa.....	—	1,006.3	21.5	—	67.8	26.9	—	—
Spain.....	—	1,774.7	—	3,068.8	80.4	94.9	15,193.2	70.5
Surinam.....	4.9	—	—	—	—	—	—	—
Swaziland.....	0.8	—	—	—	—	—	—	—
Sweden.....	91.1	2,633.1	19.3	14,552.7	60.4	80.5	276.7	91.5
Switzerland.....	—	—	—	55.1	—	—	—	—
Tanganyika.....	107.0	—	1.4 ¹	—	6.9 ¹	—	2.2	—
Thailand.....	—	—	—	8.8	2.2	—	—	—
Trinidad and Tobago.....	—	—	—	—	—	—	—	6,588.5
Tunisia.....	—	—	—	620.6	19.7	4.2	—	—
Turkey.....	—	—	28.9	544.5	2.3	5.3	4,026.7	399.0
Uganda.....	0.8 ¹	—	16.2	—	—	—	—	—
Union of Soviet Socialist Republics.....	—	—	—	68,089.8	—	—	413,292.8	162,986.6
United Arab Republic, Egypt.....	1.0	—	—	132.3	—	—	—	3,658.6
United States.....	1,679.8	36,799.7	1,080.2	52,867.9	246.7	435.4	431,583.4	383,576.7
Venezuela.....	46.8	—	—	13,750.2	—	—	38.6	167,952.5
Viet Nam—	—	—	—	—	—	—	—	—
North.....	—	—	—	—	—	—	3,306.9	—
Republic of.....	—	—	—	—	—	—	29.8	—
Yugoslavia.....	65.7	3,025.4	36.7	877.4	100.5	62.2	1,428.6	1,040.6

¹ Exports.² Excludes Northern Ireland.³ Final DBS figures.⁴ Exports to United States.

CHAPTER XII.—POWER GENERATION AND UTILIZATION

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found facing p. 1 of this volume.*

Section 1.—Water Power Resources—Available and Developed*

Canada, a land of many large lakes and fast-flowing rivers, is richly endowed with immense water power resources. With the exception of the prairies of the mid-west, these resources are found in considerable magnitude in almost every part of the country.

British Columbia, traversed by three distinct mountain ranges and with, generally speaking, a high rate of precipitation, has many mountain rivers offering abundant opportunity for the development of hydro-electric power. Notable for their power potential are such rivers as the Columbia, the Fraser, the Peace and the Stikine. Up to the present time, however, hydro-electric developments on smaller rivers in the southern part of British Columbia have supplied the major load requirements of the province. The immense power resources of the larger rivers have gone unused owing to a number of factors, including conflict of interest between fisheries and power development and remoteness from present demand areas. The water power resources of British Columbia, which in total magnitude are the second greatest in Canada, have played and will continue to play a very important part in the development of the province.

The Yukon Territory and the Northwest Territories possess extensive water power resources on the Yukon and South Nahanni Rivers. Indications are that the rivers draining the Keewatin District lying north of Manitoba will also contribute materially to the total power potential of the Northwest Territories. Owing to the lack of developed native fuel sources and to transportation difficulties, water power is of special importance in the development of mining areas such as at Yellowknife in the Northwest Territories and Mayo in Yukon Territory.

Of the three Prairie Provinces, Manitoba has the greatest water power potential. For many years the more heavily populated southern region of the province has been supplied from hydro-electric developments on the Winnipeg River. With the advent of high-voltage long-distance transmission, however, power from hydro-electric stations on northern rivers can be expected to flow south to help meet the increasing demands of industrial, urban and rural users. In both Alberta and Saskatchewan, abundant reserves of coal, oil and natural

*Revised by the Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa.

gas are used to fuel the thermal-electric plants supplying a large part of the province's power requirements. In Alberta, the principal hydro-electric developments are located on the Bow River and its tributaries but there are substantial power resources located in northern regions of the province, somewhat remote from present centres of population. In Saskatchewan, the existing hydro-electric plants are located in the northern areas and their output is used almost exclusively for mining purposes. However, significant water power resources still remain in the central and northern parts of the province and, in 1963, power from new developments on the Saskatchewan River will be fed into the transmission network serving the more settled areas.

The water power resources of Ontario are exceeded in total magnitude only by those of Quebec and British Columbia. In terms of installed hydro-electric capacity, Ontario ranks second. The largest power development in the province is located at Queenston on the Niagara River, where the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 and the associated pumping-generating station have a combined capacity of 2,521,000 hp. In recent years, the development of water power sites in Ontario has progressed at a formidable rate, particularly those located reasonably close to demand areas. Most of the province's remaining undeveloped hydraulic resources are located in areas relatively distant from power markets, a factor that has increased the emphasis on thermal-electric development. However, this emphasis is being modified as a result of the initiation of development of a number of the more remote hydro-electric sites to supply power to an integrated system drawing energy from both hydraulic and thermal sources.

Quebec is the richest province in terms of water power resources, having more than 30 p.c. of the total recorded for Canada. Quebec also ranks highest in terms of developed water power, the present installation of 12,576,845 hp. representing about 47 p.c. of the national total. The Beauharnois development on the St. Lawrence River, with 2,161,000 hp. installed, is the greatest concentration of hydro-electric capacity in one plant in Canada. Notable also are the Bersimis I development on the Bersimis River and the Shipshaw plant on the Saguenay River, each with installed capacities of 1,200,000 hp. A major power plan which will represent a significant advance in the development of Quebec's hydro-electric resources is under construction. The plan involves the harnessing of the headwaters of the Manicouagan and Outardes Rivers and will eventually make available nearly 6,000,000 hp. of additional capacity at new and existing developments on the two rivers.

The water power resources of New Brunswick and Nova Scotia, although small in comparison with those of other provinces, are a valuable source of power. Numerous rivers in both provinces provide moderate-sized power sites advantageously situated for urban or rural use. In Prince Edward Island there are no large streams and, consequently, water power sites are limited in size and are used for small mills. On the Island of Newfoundland, topography and runoff conditions favour the development of power, even though the drainage areas of the rivers are, in general, not great. Considerable development has taken place on the Island, mainly to serve the pulp and paper industry. In Labrador, the Hamilton River and its tributaries rank as one of the largest undeveloped sources of water power in Canada.

An accurate comparison of the magnitude and development of Canada's water power resources with those of other countries is not possible because world statistics are incomplete and are not tabulated on the same basis. From information available, however, it is seen that Canada is exceeded only by the United States in the total of water power capacity actually installed, and only by Norway in the amount of installation per thousand of population. In terms of potential water power resources, Canada ranks fifth. However, with the exception of the United States, water power resources in Canada are more readily available to prospective markets than they are in the countries that have greater power potential.

Table 1 lists, by province or territory, the estimated total water power resources of Canada and the total existing capacity of all water power plants.

1.—Available and Developed Water Power, by Province, as at Jan. 1, 1962

Province or Territory	Available 24-Hour Power at 80 p.c. Efficiency		Turbine Installation ¹
	At Ordinary Minimum Flow	At Ordinary Six-Months Flow	
	hp.	hp.	hp.
Newfoundland.....	1,608,000	3,264,000	384,025
Prince Edward Island.....	500	3,000	1,660
Nova Scotia.....	30,500	177,000	204,538
New Brunswick.....	123,000	334,000	254,258
Quebec.....	12,527,000	23,706,000	12,576,845
Ontario.....	5,496,000	7,701,000	7,959,512
Manitoba.....	3,492,000	5,798,000	988,900
Saskatchewan.....	550,000	1,120,000	142,135
Alberta.....	911,000	2,453,000	414,455
British Columbia.....	18,200,000 ²	19,400,000 ²	3,701,326
Yukon Territory.....	4,678,000 ²	4,700,000 ²	38,190
Northwest Territories.....	1,369,000 ²	1,795,000 ²	22,250
Canada.....	48,985,000²	70,451,000²	26,688,094

¹ Includes water wheels and hydraulic turbines installed.
stream-flow regulation based on known storage potentials.

² This figure reflects the effect of possible

The figures listed in the second and third columns of Table 1 represent continuous 24-hour power based on available data on stream flow and hydraulic head at individual sites. The hydraulic head used is the feasible concentration of head, which has been measured or at least estimated at existing falls, rapids and known power sites. No consideration has been given to possible economic concentrations of head on rivers and streams of gradual gradient, except at those locations where the available head has been definitely established by field investigations.

It should be emphasized that the figures of available power represent only the minimum water power possibilities of Canada. Many unrecorded power sites exist on rivers and streams throughout the country, particularly in the less explored northerly districts. As power surveys are extended, information on new sites will become available, resulting in substantial additions to present estimates of available power. With the exception of British Columbia and Yukon Territory, estimates of available power are based upon existing river flows and do not take into account the benefits of stream-flow regulation resulting from the development of storage potential. In addition, the figures of available power do not include the power potential of major river diversions that have been investigated but not developed.

The figures in the third column of Table 1 are the totals of plant capacities based upon the manufacturer's name-plate rating of each unit. The maximum economic turbine installation at any power site can be determined only by consideration of the conditions pertinent to its development. It is the usual practice, however, to install a total turbine capacity in excess of the power equivalent of the ordinary six-months flow at the site. The extent to which the installed capacity exceeds the power equivalent of the ordinary six-months flow depends upon the system of power-plant operation, varying widely throughout the country, and amounting to several hundred per cent in some instances. Therefore, figures of installed turbine capacity are not directly comparable with figures of available power at either ordinary minimum or ordinary six-months flow.

The steady growth of hydraulic turbine capacity is shown in Table 2. The average annual growth of 56,000 hp. in the period 1900-05 increased sharply to about 150,000 hp. per annum in the 1906-22 period, owing largely to improvements in electric power transmission and to the construction of large hydro-electric stations. As a result of the heavier demand for electricity during the prosperous 1920's, the rate of installation increased appreciably in 1923 and continued at a nearly uniform rate of 377,000 hp. per annum until

1935. Conditions resulting from the economic depression of the early 1930's were responsible for a decrease in construction starts and the comparatively low rate of installation during the period 1936-39. The wartime demand for power accelerated the installation rate to an average of 481,000 hp. per annum for the period 1940-43. Few new developments were initiated in the later years of the war or in the immediate postwar period so that, from 1944 to 1947, only a small amount of new capacity came into operation. The program of construction of hydro-electric power plants gained momentum soon after the War, however, and the results are apparent in the substantial growth in new capacity brought into service during the period 1948-60. The average annual rate of installation for this period exceeded 1,200,000 hp. In sharp contrast to this high average rate is the comparatively moderate net total of 294,650 hp.* of new capacity put into service in 1961. During the next few years, however, the installation rate for new hydro-electric developments is expected to pick up again with the completion of a number of major projects planned or under construction.

* This net total takes into account the deletion of 1,550 hp. at a dismantled plant in Ontario, but does not reflect an increase of 60,000 hp. brought about by the re-rating of an existing plant in Quebec.

2. - Hydraulic Turbine Horsepower Installed, by Province, as at Dec. 31, Decennially 1900-50 and Annually 1951-61

NOTE.—Figures for the years 1900-30 are given in the 1939 Year Book, p. 362; for 1931-39 in the 1946 edition, p. 362; and for 1940-49 in the 1954 edition, pp. 556-557.

Year	New-foundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	hp.	hp.	hp.	hp.	hp.	hp.
1900.....	—	1,521	19,810	4,601	82,864	53,876
1910.....	—	1,760	31,476	11,197	334,763	490,821
1920.....	—	2,233	37,623	21,976	955,090	1,057,422
1930.....	—	2,439	114,224	133,681	2,718,130	2,088,055
1940.....	—	2,617	139,217	133,347	4,320,943	2,597,595
1950.....	262,810	2,299	150,960	133,111	6,372,812	3,513,840
1951.....	279,160	2,299	150,960	132,911	6,755,351	3,718,505
1952.....	292,660	2,299	162,455	135,511	7,263,621	3,948,466
1953.....	311,150	1,900	162,433	164,130	7,719,122	4,006,686
1954.....	323,150	1,882	170,908	164,130	7,773,822	4,845,486
1955.....	329,150	1,882	177,018	164,130	7,975,657	5,367,866
1956.....	336,750	1,882	179,718	164,130	8,489,957	5,443,766
1957.....	337,970	1,882	181,958	209,130	8,979,857	5,624,766
1958.....	368,935	1,660	183,168	254,375	9,857,607	7,150,851
1959.....	370,925	1,660	184,538	254,258	11,263,645	7,788,062
1960.....	384,025	1,660	184,538	254,258	12,440,145	7,814,562
1961.....	384,025	1,660	204,538	254,258	12,576,845	7,959,512
	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon and N.W.T.	Canada
	hp.	hp.	hp.	hp.	hp.	hp.
1900.....	1,000	—	280	9,366	5	173,323
1910.....	38,800	30	655	64,474	3,195	977,171
1920.....	85,325	35	33,122	309,534	13,199	2,515,559
1930.....	311,925	42,035	70,532	630,792	13,199	6,125,012
1940.....	420,925	90,835	71,997	758,763	18,199	8,584,438
1950.....	595,200	111,835	107,225	1,284,208	28,450	12,562,750
1951.....	596,400	111,835	207,825	1,358,808	28,450	13,342,504
1952.....	716,900	111,835	207,825	1,432,858	31,450	14,305,880
1953.....	716,900	109,835	207,960	1,496,518	32,440	14,929,074
1954.....	756,900	109,835	258,710	2,246,868	32,440	16,684,131
1955.....	796,900	109,835	284,010	2,271,460	33,240	17,511,148
1956.....	796,900	109,835	285,010	2,514,960	33,240	18,356,148
1957.....	778,900	109,835	308,010	3,122,460	36,240	19,891,008
1958.....	778,900	109,835	312,595	3,310,460	51,240	22,379,626
1959.....	778,900	128,835	312,455	3,499,106	51,240	24,633,624
1960.....	946,900	132,135	414,455	3,700,326	60,440	26,333,444
1961.....	988,900	142,135	414,455	3,701,326	60,440	26,688,094

The availability of large amounts of low-cost hydro-electric energy has been an essential factor in the development of Canadian industry. Power from hydro-electric plants ranging in capacity from a few hundred horsepower to more than a million horsepower is carried via transmission line networks to urban centres and rural districts. The ability to transmit power over relatively long distances has facilitated the decentralization of industry and has enabled manufacturers to carry on operations in many of the smaller centres of population.

Table 3 indicates the respective amounts of water power developed by utilities and by industrial establishments. For the purposes of this tabulation, utilities are defined as companies, municipalities or individuals who sell most of the power they develop. In some cases, they include also certain subsidiary companies whose main purpose is to develop and sell power to a parent company for industrial purposes. The total of 20,597,193 hp. of turbine capacity installed in plants operated by utilities on Jan. 1, 1962 represented 77 p.c. of Canada's total installed capacity.

Industrial establishments are defined as companies or individuals who develop power mainly for their own use. The total installed capacity of plants operated by industrial establishments on Jan. 1, 1962 was 6,090,901 hp. In addition to the power generated in industrial plants, industry purchases a considerable amount from utilities.

The total hydraulic installation at the beginning of 1962 (26,688,094 hp.) was the total of all existing installations of water wheels and hydraulic turbines in Canada irrespective of whether or not the equipment was in use.

3. Installed Water Power Capacity, by Province, as at Jan. 1, 1962

Province or Territory	Turbine Installation		Total ³
	Utilities ¹	Industries ²	
	hp.	hp.	hp.
Newfoundland.....	270,305	113,720	384,025
Prince Edward Island.....	240	1,420	1,660
Nova Scotia.....	189,345	15,193	204,538
New Brunswick.....	227,940	26,318	254,258
Quebec.....	8,919,678	3,657,167	12,576,845
Ontario.....	7,516,110	443,402	7,959,512
Manitoba.....	973,000	15,900	988,900
Saskatchewan.....	125,500	16,635	142,135
Alberta.....	413,390	1,065	414,455
British Columbia.....	1,920,945	1,780,381	3,701,326
Yukon and Northwest Territories.....	40,740	19,700	60,440
Canada.....	20,597,193	6,090,901	26,688,094
Percentage of total installation.....	77	23	100

¹ Includes only hydro-electric installations that develop power mainly for sale.
power installations developed by industries mainly for their own use.

² Includes only water
³ Includes installed capacity of all
water wheels and hydraulic turbines.

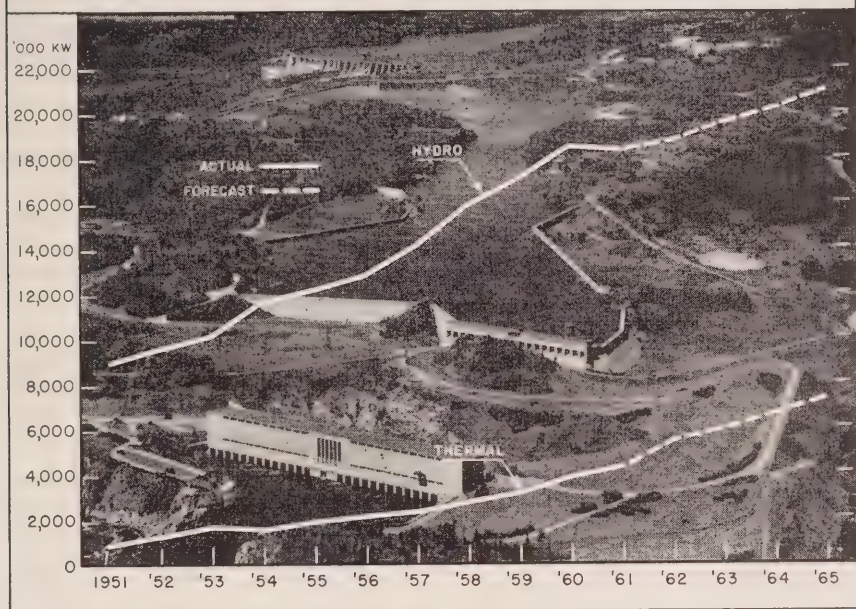
Section 2.—Power Generating Capability and Load Requirements*

Power generating *capability*, as covered in this Section, is the measurement of the available generating resources of all hydro and thermal facilities at the time of the one-hour firm peak load for each reporting company, and is not equal to the *capacity* of such generating facilities. For example, a hydro plant may have a capacity of 100,000 kw. but if, at the time of peak-load, the water available for generation is only 80 p.c. of the plant capacity requirements, then its capability is 80,000 kw.

Total generating capability has grown at a rapid rate since 1950. The annual rate of increase was 9.2 p.c. in the ten-year period 1951-60 and 8.4 p.c. in the period 1958-61. In comparison, the forecast rate of growth for the years 1962-65 is only 5.8 p.c.; thermal

* Prepared by the Public Utilities Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

NET GENERATING CAPABILITY WITHIN CANADA, 1951-65



generating capability is expected to grow at the average rate of 14.5 p.c. a year in the forecast period compared with 17.1 p.c. in the period 1951-60, but hydro-electric capability is expected to increase at only 3.3 p.c. a year compared with 8.0 p.c. in the 1951-60 period.

Among the provinces, Quebec has the largest generating capability, followed by Ontario, British Columbia and Alberta. Quebec also has the largest hydro-electric generating capability, followed by Ontario and British Columbia, but Ontario has the largest thermal capability, followed by Saskatchewan and Alberta. The first nuclear capability is scheduled for 1965.

The largest absolute growth in generating capability for the forecast years is indicated for Ontario, amounting to 2,135,000 kw., followed by Quebec 1,616,000 kw., British Columbia 582,000 kw., and Alberta 450,000 kw. Quebec will meet most of its increased generating capability by adding over 1,300,000 kw. in hydro capability and 200,000 kw. in thermal capability. Ontario will add 1,750,000 kw. thermal, including 200,000 kw. nuclear, and only 385,000 hydro; British Columbia plans to add 466,000 kw. thermal and 110,000 kw. hydro; and Alberta will add 150,000 kw. hydro and 300,000 kw. thermal. Thus, it is apparent that thermal capability is becoming of greater importance, partly because of decreasing availability of hydro resources in provinces such as Ontario and partly because technological advances have made possible much more efficient use of thermal fuels in the operation of thermal base load plants.

Firm power peak load is the measure of the maximum average net kilowatt demand of one-hour duration from all loads, including commercial, residential, farm and industrial consumers as well as the line losses. Such load demand increased at the rate of 7.0 p.c. a year from 1951 to 1960 but only 5.7 p.c. a year from 1958 to 1960; peak load demand is forecast to increase at the average rate of 6.2 p.c. a year in the period 1962-65. As a result

of the rapid increase in generating capability and the somewhat slower but steady increase in the peak loads as well as the slight reduction in deliveries of firm power to the United States, the indicated reserve on net generating capability, which increased steadily from 1951 to 1960, declined in 1961; it is forecast to increase in 1962, decrease in 1963 and 1964 and increase again in 1965. The reserve ratio as a percentage of firm power peak load, which reached a high of 28.2 p.c. in 1960, is expected to decrease to 15.2 p.c. in 1964, the lowest ratio since 1948, but increase to 20.3 p.c. in 1965.

4.—Net Generating Capability, by Province, 1961

(Thousand kilowatts)

Type of Generating Facility	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
Hydro-electric.....	258	—	141	185	8,628	5,292
Thermal-electric—						
Steam.....	40	32	365	243	59	1,555
Internal combustion.....	13	5	2	8	15	11
Gas turbine.....	—	—	—	—	36	—
Totals.....	311	37	508	436	8,738	6,858
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
Hydro-electric.....	735	107	327	2,672	44	18,389
Thermal-electric—						
Steam.....	166	572	498	117	1	3,648
Internal combustion.....	4	35	28	109	10	240
Gas turbine.....	—	43	100	172	—	351
Totals.....	905	757	953	3,070	55	22,628

5.—Capability and Firm Power Peak Load Requirements, Actual 1951 and 1956-61 and Forecast 1962-65

(Thousand kilowatts)

Item	Actual							Forecast			
	1951	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Net Generating Capability—											
Hydro-electric.....	9,044	12,841	14,143	15,912	17,086	18,516	18,389	18,728	19,526	20,121	21,013
Steam—Conventional.....							3,648	4,868	5,292	5,960	6,450
Nuclear.....							—	—	—	—	200
Internal combustion.....	1,032	2,142	2,326	2,716	3,119	3,824	240	240	243	249	254
Gas turbine.....							351	382	384	386	396
Totals, Net Generating Capability...	10,076	14,983	16,469	18,628	20,205	22,340	22,628	24,218	25,445	26,716	28,313
Receipts of firm power from											
United States.....	—	56	—	—	—	—	2	2	3	3	3
Deliveries of firm power to											
United States.....	175	147	150	152	152	166	146	176	131	135	121
Totals, Net Capability	9,901	14,892	16,319	18,476	20,053	22,174	22,484	24,041	25,317	26,584	28,195
Peak Loads—											
Firm power peak load within Canada.....	8,989	13,668	14,664	15,568	16,201	17,264	18,353	19,493	20,871	22,188	23,415
Indicated shortages.....	321	47	2	—	—	—	—	—	—	—	—
Totals, Indicated Peak Load within Canada	9,310	13,715	14,666	15,568	16,201	17,264	18,353	19,493	20,871	22,188	23,415
Indicated Reserve.....	591	1,177	1,653	2,908	3,852	4,910	4,131	4,551	4,446	4,396	4,780

Section 3.—Electric Power Statistics

Electric power statistics presented in this Section are based on reports of all electrical utilities and all industrial establishments that generate energy regardless of whether or not any is sold, and therefore show the total production and distribution of electric energy in Canada. Utilities are defined as companies, commissions, municipalities or individuals whose primary function is to sell most of the electric energy that they have either generated or purchased. Industrial establishments are defined as companies or individuals that generate electricity mainly for use in their own plants.

The current series of electric power statistics dates back to 1956. Earlier reports, entitled *Central Electric Stations*, were concerned solely with the electrical utility industry and hence excluded statistics relating to power produced by industrial establishments for their own use, although power sold by such establishments was included.

The figures of total water and thermal power generated for the years 1944-55 shown in Table 6 are compiled on the old basis, figures for 1956 are shown on both bases for comparative purposes, and those for later years are on the new basis.

6.—Electric Energy Generated, by Type of Station 1944-60, and by Province 1959 and 1960

Year and Province or Territory	Generated by—		Total	Year and Province or Territory	Generated by—		Total
	Water Power	Thermal Power			Water Power	Thermal Power	
	'000 kwh.	'000 kwh.	'000 kwh.		'000 kwh.	'000 kwh.	'000 kwh.
1944.....	39,553,352	1,045,427	40,598,779	1953.....	58,926,462	3,934,465	62,860,927
1945.....	39,131,020	999,034	40,130,054	1954.....	62,572,316	3,364,124	65,936,440
1946.....	40,692,395	1,044,592	41,736,987	1955.....	69,478,003	3,432,589	72,910,592
1947.....	42,273,167	1,151,632	43,424,799	1956.....	73,524,583	4,479,770	78,004,353
1948.....	41,070,095	1,319,586	42,389,681	1956 ¹	81,839,968	6,543,333	88,383,301
1949.....	42,779,199	1,639,374	44,418,573	1957 ¹	83,373,220	7,668,860	91,042,080
1950.....	46,624,118	1,869,500	48,493,718	1958 ¹	90,509,200	6,975,089	97,484,289
1951.....	52,955,002	1,896,842	54,851,844	1959 ¹	97,039,830	7,598,653 ¹	104,628,483 ¹
1952.....	57,023,530	2,385,668	59,409,198	1960 ¹	105,882,773	8,495,160	114,377,933
1959¹				1960¹			
Nfld.....	1,370,826	77,812	1,448,638	Nfld.....	1,424,677	86,882	1,511,559
P.E.I.....	340	70,802	71,142	P.E.I.....	415	79,037	79,452
N.S.....	679,450	970,592	1,650,042	N.S.....	655,164	1,158,769	1,813,933
N.B.....	1,115,835	707,638 ¹	1,823,473 ¹	N.B.....	816,105	922,273	1,738,378
Que.....	44,621,143	232,763	44,853,926	Que.....	50,109,271	323,630	50,432,901
Ont.....	32,386,820	996,012 ¹	33,382,832 ¹	Ont.....	34,948,511	866,553	35,815,064
Man.....	3,580,427	62,816	3,643,243	Man.....	3,659,920	81,991	3,741,911
Sask.....	587,366	1,512,312	2,099,678	Sask.....	621,829	1,581,996	2,203,825
Alta.....	842,259	2,255,207	3,097,466	Alta.....	886,595	2,556,813	3,443,408
B.C.....	11,701,239	671,978	12,373,217	B.C.....	12,600,494	807,889	13,408,383
Yukon and N.W.T.....	154,125	30,701	184,826	Yukon and N.W.T.....	159,792	29,327	189,119
Canada, 1959..	97,039,830	7,583,653¹	104,628,483¹	Canada, 1960..	105,882,773	8,495,160	114,377,933

¹ New series, see immediately preceding text.

Of the total generation in 1960 of 114,377,933,000 kwh., 92.6 p.c. was produced from water power and 7.4 p.c. was generated thermally; the proportions differed somewhat among provinces as shown in the following statement.

Province	Hydro		Thermal		Province or Territory	Hydro		Thermal	
	p.c.	p.c.	p.c.	p.c.		p.c.	p.c.	p.c.	p.c.
Newfoundland.....	94.2	5.8			Manitoba.....	97.8	2.2		
Prince Edward Island.....	1.2	98.8			Saskatchewan.....	22.2	71.8		
Nova Scotia.....	33.1	63.9			Alberta.....	25.7	74.3		
New Brunswick.....	47.0	53.0			British Columbia.....	94.0	6.0		
Quebec.....	99.4	0.6			Yukon and N.W.T.....	84.7	15.3		
Ontario.....	97.6	2.4							

Table 7 gives summary figures of power production and distribution classified by province and Tables 8 and 9 give figures classified by type of production establishment. Total installed capacity in Canada amounted to 23,035,002 kw. in 1960, an increase of 1,906,632 kw. over 1959. Of the 1960 total, 18,418,749 kw. were accounted for by utilities and the remainder by industrial establishments. During 1959 and 1960 total sales to ultimate customers amounted to 71,888,110,000 kwh. and 76,829,969,000 kwh., respectively, of which 99.7 p.c. was sold each year by utilities.

Sales to power customers made up 61.5 p.c. of the total in 1959 and 61.1 p.c. in 1960, sales to domestic and farm customers were 26.4 p.c. and 26.5 p.c., and commercial sales 11.2 p.c. and 11.5 p.c. in the respective years. Exports to the United States in 1960 amounted to 5,495,572,000 kwh. compared with 4,580,619,000 kwh. in 1959.

7.—Summary Electric Power Statistics, by Province, 1959 and 1960

Year and Province or Territory	Installed Generating Capacity	Energy Made Available in Canada	Exported to U.S.A.	Ultimate Customers	Total Revenue from Ultimate Customers	Electric Utilities	
						Employees	Salaries and Wages
	kw.	'000 kwh.	'000 kwh.	No.	\$'000	No.	\$'000
1959							
Newfoundland.....	274,257	1,407,345	—	62,033	9,814	591	1,883
Prince Edward Island..	25,641	71,142	—	21,090	2,362	177	563
Nova Scotia.....	498,515	1,636,058	—	194,161	25,701	1,583	5,940
New Brunswick.....	591,987	1,692,975	158,621	147,660	20,655	1,194	4,204
Quebec.....	8,147,244	38,664,153	555,358	1,335,133	201,167	9,755	42,134
Ontario.....	6,701,072	35,611,891	3,865,099	1,903,152	288,473	16,560	82,715
Manitoba.....	775,217	4,276,731	36	282,417	34,152	2,524	10,349
Saskatchewan.....	693,958	1,521,405	—	241,519	33,568	2,387	10,837
Alberta.....	766,452	3,127,393	—	339,449	49,242	1,956	9,072
British Columbia.....	2,808,534	12,365,944	1,505	487,487	87,668	2,559	14,371
Yukon and N.W.T.....	45,503	184,826	—	4,619	2,970	154	721
Canada, 1959.....	21,128,370	100,559,866	4,580,619	5,018,720	755,772	39,440	182,789
1960							
Newfoundland.....	313,694	1,426,845	—	67,152	10,722	602	2,000
Prince Edward Island..	37,360	79,452	—	22,002	2,544	172	621
Nova Scotia.....	506,865	1,733,333	—	197,021	28,753	1,603	6,256
New Brunswick.....	401,737	1,683,905	165,109	150,592	21,517	1,124	4,317
Quebec.....	8,920,347	44,002,303	569,074	1,393,973	215,020	10,133	45,203
Ontario.....	7,108,600	37,157,107	4,759,717	1,951,686	305,648	18,312	89,033
Manitoba.....	1,042,617	4,465,619	34	287,257	36,213	2,599	11,595
Saskatchewan.....	761,291	1,600,288	—	255,825	34,861	2,313	11,137
Alberta.....	915,281	3,475,306	—	355,707	52,645	1,749	8,994
British Columbia.....	2,963,117	13,425,962	1,638	501,947	93,922	2,267	13,196
Yukon and N.W.T.....	64,093	189,119	—	5,090	3,491	185	947
Canada, 1960.....	23,035,002	109,239,239	5,495,572	5,188,252	805,336	41,059	190,099

8.—Summary Electric Power Statistics, by Type of Establishment, 1959 and 1960

Year and Item		Electrical Utilities			Industrial Establishments	Total
		Publicly Operated	Privately Operated	Total		
1959						
Installed generator capacity.....	kw.	11,213,376	5,642,914 ^r	16,856,290 ^r	4,272,080 ^r	21,128,370 ^r
Energy generated.....	'000 kwh.	53,395,382	29,653,503	83,048,885	21,579,598 ^r	104,628,483 ^r
Hydro.....	"	50,140,055	27,627,690	77,767,745	19,272,085	97,039,830
Thermal.....	"	3,255,327	2,025,813	5,281,140	2,307,513 ^r	7,688,653 ^r
Energy Made Available in Canada....		'000 kwh.	..	..	..	100,559,866 ^r
1960						
Disposal of energy in Canada.....	'000 kwh.	51,253,119	29,442,042 ^r	80,695,161 ^r	184,440	80,879,601 ^r
Energy exported to United States.....	"	4,035,281	435,986	4,471,267	109,352	4,580,619
Ultimate customers in Canada.....	No.	3,500,066	1,508,557	5,008,623	10,097	5,018,720
Domestic and farm.....	"	3,069,321	1,303,019	4,372,340	9,224	4,381,564
Commercial.....	"	361,925	165,843	527,773	806	528,579
Power.....	"	66,042	37,416	103,458	49	103,507
Street lighting.....	"	2,778	2,274	5,052	18	5,070
Revenue from ultimate customers.....	\$'000	495,179	258,853	754,032	1,740	755,772
Revenue from exports to United States.....	"	10,856 ^r	2,430 ^r	13,286 ^r	609 ^r	13,895 ^r
Employees.....	No.	28,685	10,755	39,440	..	..
Salaries and wages.....	\$'000	133,505	49,284	182,789	..	..
1960						
Installed generator capacity.....	kw.	12,532,652	5,886,097	18,418,749	4,616,253	23,035,002
Energy generated.....	'000 kwh.	57,850,106	31,227,034	89,077,140	25,300,793	114,377,933
Hydro.....	"	54,239,764	28,962,784	83,202,548	22,680,225	105,882,773
Thermal.....	"	3,610,342	2,264,250	5,874,592	2,620,568	8,495,160
Energy Made Available in Canada....		'000 kwh.	..	..	..	109,239,239
1960						
Disposal of energy in Canada.....	'000 kwh.	54,217,662	31,945,958	86,163,620	214,464	86,378,084
Energy exported to United States.....	"	4,920,977	461,853	5,382,830	112,742	5,495,572
Ultimate customers in Canada.....	No.	3,627,288	1,550,761	5,178,049	10,203	5,188,252
Domestic and farm.....	"	3,192,449	1,340,901	4,533,350	9,450	4,542,780
Commercial.....	"	365,106	168,832	533,938	708	534,646
Power.....	"	66,752	38,595	105,347	46	105,393
Street lighting.....	"	2,931	2,583	5,514	19	5,533
Revenue from ultimate customers.....	\$'000	529,341	274,105	803,446	1,890	805,336
Revenue from exports to United States.....	"	11,318	2,370	13,688	663	14,351
Employees.....	No.	30,559	10,500	41,059	..	..
Salaries and wages.....	\$'000	140,378	49,221	190,099	..	..

9.—Electric Power Generated classified by Type of Establishment, by Province, 1959 and 1960

Year and Province or Territory	Electrical Utilities		Industrial Establish- ments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
1959				
Newfoundland.....	—	1,045,510	403,128	1,448,638
Prince Edward Island.....	5,137	66,005	—	71,142
Nova Scotia.....	552,623	940,320	157,099	1,650,042
New Brunswick.....	1,152,302	153,614	517,557 ^r	1,823,473 ^r
Quebec.....	14,132,316	19,159,617	11,561,993	44,853,926
Ontario.....	29,822,485	1,498,395	2,061,952 ^r	33,382,832 ^r
Manitoba.....	3,598,423	—	44,820	3,643,243
Saskatchewan.....	1,325,180	673,217	101,281	2,099,678
Alberta.....	952,938	1,877,108	267,420	3,097,466
British Columbia.....	1,746,275	4,230,458	6,396,484	12,373,217
Yukon and Northwest Territories.....	107,703	9,259	67,864	184,826
Canada, 1959.....	53,395,382	29,653,503	21,579,598 ^r	104,628,483 ^r

**9.—Electric Power Generated classified by Type of Establishment, by Province,
1959 and 1960—concluded**

Year and Province or Territory	Electrical Utilities		Industrial Establish- ments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
1960				
Newfoundland.....	10	1,083,702	427,847	1,511,559
Prince Edward Island.....	6,545	72,907	—	79,452
Nova Scotia.....	590,067	1,071,187	152,679	1,813,933
New Brunswick.....	1,107,090	65,850	565,438	1,738,378
Quebec.....	16,117,174	20,071,192	14,241,535	50,432,901
Ontario.....	31,931,862	1,704,943	2,178,259	35,815,064
Manitoba.....	3,690,486	—	51,425	3,741,911
Saskatchewan.....	1,516,026	586,155	100,744	2,203,825
Alberta.....	1,022,324	2,103,957	317,127	3,443,408
British Columbia.....	1,718,911	4,456,134	7,203,338	13,408,383
Yukon and Northwest Territories.....	118,711	11,007	59,401	189,119
Canada, 1960.....	57,850,106	31,227,034	25,300,793	114,377,933

Average domestic and farm consumption rose from 4,338 kwh. in 1959 to 4,489 kwh. in 1960. Among the provinces, the averages in 1960 varied from a low of 1,625 kwh. in Prince Edward Island to a high of 6,184 kwh. in Manitoba. For domestic and farm customers the average annual bill was \$71.75 in 1960 as against \$69.76 in 1959, an increase of 2.9 p.c.

Although many utilities do not keep records on farm customers separate from other domestic customers, the data reported on farm service indicate that the average consumption rose from 4,086 kwh. per customer in 1959 to 4,345 kwh. in 1960 and the average bill from \$93.05 to \$96.49.

**10.—Domestic and Farm Service by Electrical Utilities and Industrial Establishments,
1939, 1945 and 1958-60**

Item	1939	1945	1958	1959	1960
Customers..... No.	1,623,672	1,987,360	4,188,946	4,381,564	4,542,780
Kilowatt-hours sold..... '000	2,310,891	3,365,497	17,290,984	19,007,111	20,391,857
Revenue received..... \$'000	43,793	55,736	278,531	305,662	325,946
Kilowatt-hours per customer..... No.	1,423	1,693	4,128	4,338	4,489
Average annual bill..... \$	26.97	28.05	66.49	69.76	71.75
Revenue per kwh..... cts.	1.90	1.66	1.61	1.61	1.60

In 1960, natural gas accounted for 45.8 p.c. of thermal generation by utilities, coal for 41.1 p.c. and petroleum fuels for 13.1 p.c.; corresponding percentages in 1959 were 50.2 p.c., 35.9 p.c. and 13.9 p.c., respectively.

11.—Fuel Used by Electrical Utilities to Generate Power, by Province, 1959 and 1960

Year and Province or Territory	Coal		Petroleum Fuels		Gas	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	Imp. gal.	\$	Mcf.	\$
1959						
Newfoundland.....	—	—	3,070,850	260,825	—	—
Prince Edward Island.....	—	—	6,302,206	431,147	—	—
Nova Scotia.....	426,057	4,484,380	9,042,178	623,874	—	—
New Brunswick.....	140,971	1,418,041	2,957,208	306,659	—	—
Quebec.....	—	—	2,072,851	399,585	—	—
Ontario.....	195,823	1,688,222	760,953	142,151	64,266	23,047
Manitoba.....	34,080	160,750	442,642	79,775	364,680	114,532
Saskatchewan.....	435,142	1,094,093	31,276,799	1,784,400	10,768,447	1,480,636
Alberta.....	187,023	241,366	983,069	120,033	25,156,378	2,991,350
British Columbia.....	26	319	4,869,435	884,683	1,453,821	348,106
Yukon and Northwest Territories...	—	—	865,811	207,083	—	—
Canada, 1959.....	1,419,122	9,087,171	62,644,002	5,240,215	37,807,592	4,957,671
1960						
Newfoundland.....	—	—	4,501,955	345,675	—	—
Prince Edward Island.....	—	—	7,026,967	465,383	—	—
Nova Scotia.....	493,916	5,203,562	12,115,327	814,190	—	—
New Brunswick.....	202,324	1,620,457	8,635,326	1,022,938	—	—
Quebec.....	—	—	2,343,068	364,943	—	—
Ontario.....	117,898	1,028,244	1,652,894	292,528	100,648	36,578
Manitoba.....	55,586	229,196	1,087,564	176,458	129,127	37,467
Saskatchewan.....	769,833	1,393,327	26,644,175	1,570,726	8,155,690	1,082,655
Alberta.....	206,592	316,850	1,639,773	135,082	27,876,986	3,549,288
British Columbia.....	—	—	4,908,510	902,978	1,678,277	438,759
Yukon and Northwest Territories...	—	—	1,151,817	304,949	—	—
Canada, 1960.....	1,846,149	9,791,636	71,707,376	6,395,850	37,940,728	5,144,747

Section 4.—Water and Thermal Power Developments in the Provinces and Territories, 1961

During 1961, hydro-electric turbine capacity of 294,650 hp. and thermal-electric generating capacity of 661,075 kw. were added to the electric power production facilities of Canada. New installations for the year thus were approximately 25 p.c. water power and 75 p.c. thermal power. This was the first time in recent years that installation of thermal-electric generating capacity during one year exceeded that of hydro-electric capacity. The trend will continue in 1962 when approximately 900,000 kw. of new thermal capacity and some 416,000 hp. of water power capacity are expected to be added. However, more than 8,100,000 hp. of new hydro-electric capacity and about 2,500,000 kw. of new thermal-electric capacity were either under construction or in the planning stage at the end of 1961 and are expected to be added in the years subsequent to 1962.

Progress in construction of both hydro-electric and thermal-electric plants during 1961 is outlined below, by province and territory.

Atlantic Provinces.—Although three of the four Atlantic Provinces carried on construction for the development of water power resources, only Nova Scotia brought new hydro-electric capacity into service in 1961. In thermal-electric development, however, some new capacity was completed in each of the four provinces during the year.

In Nova Scotia, the Nova Scotia Power Commission completed the construction of two single-unit hydro-electric developments on the Sissiboo River. One of these, with a capacity of 12,000 hp., is located at Weymouth Falls and the other, with a capacity of 8,000 hp., at Sissiboo Falls. The Commission was giving active consideration to the construction of two other developments—a 10,800-hp. plant at Riverdale on the Sissiboo River, and a 90,000-hp. development on Wreck Cove Brook. The Nova Scotia Light and Power Company Limited is expected to complete the construction of its single-unit, 7,500-hp. development on the Allain (Lequille) River at Lequille in 1963. In addition, the Company is actively considering the development of a 6,500-hp. plant on the Nictaux River at Alpena. In the thermal-electric field, an 11,500-kw. steam plant was brought into service at Port Hawkesbury by Nova Scotia Pulp Limited.

In Newfoundland, new electric generating facilities brought into service in 1961 consisted of 1,200 kw of thermal-electric capacity. This new capacity resulted from the addition of a 1,000-kw. unit at the Iron Ore Company of Canada thermal plant at Carol Lake in Labrador and the installation of single 100-kw. units at each of the Newfoundland Light and Power Company's plants at Badger and Baie Verte. In the hydro-electric field, the Twin Falls Power Corporation Limited continued construction of its Twin Falls hydro-electric development on the Unknown River in Labrador. The initial stage, comprising two units of 60,000 hp. each, is scheduled for completion in mid-1962. Ultimate development of this site is expected to reach 300,000 hp. Two other hydro-electric developments, both on the island portion of the province, were in the planning stage. One of these, with an initial installation of 77,000 hp. in two units and an ultimate capacity of up to 350,000 hp., is planned by the Southern Newfoundland Power and Development Limited for installation on the Salmon River at Head Bay d'Espoir. The other is planned by the Bowater Power Company Limited which proposes to install a 54,000-hp. hydro-electric development on Hinds Brook.

In New Brunswick, the New Brunswick Electric Power Commission's Courtenay Bay steam plant at East Saint John was placed in operation in 1961 with an initial installation of 50,000 kw. in one unit. With reference to future thermal-electric development, the Commission's plans include the construction of a 60,000-kw. steam plant at Newcastle Creek on Grand Lake for operation in 1964. In the hydro-electric field, installation of an additional unit at the Commission's Beechwood plant on the St. John River was expected to be completed early in 1962. The new unit, with a turbine rated at 55,500 hp., will bring the total installed capacity at Beechwood to 145,500 hp. in three units. The Commission also continued studies of a power site on the St. John River at Mactaquac, about 15 miles upstream from Fredericton. Indications are that a total of about 600,000 hp. could be installed at this site.

In Prince Edward Island, the Town of Summerside added a 2,200-kw. unit in its diesel-electric plant, raising the total plant capacity to 5,081 kw. in eight units. The Maritime Electric Company Limited plans to install a 20,000-kw unit in its steam plant at Charlottetown to augment the 32,500 kw. at present available.

Quebec.—In 1961, the Province of Quebec added only 76,700 hp. of new hydro-electric turbine capacity to its already substantial power-producing capability. However, this is not a true indication of the level of activity in the field of hydro-electric construction in the province, as construction under way will bring about the installation of some 240,000 hp. of new capacity in 1962 and more than 5,900,000 hp. in subsequent years. In addition, about 300,000 kw. of new thermal-electric capacity is planned for 1964.

The third and last stage of the Beauharnois development of the Quebec Hydro-Electric Commission was essentially completed in 1961 when the tenth 73,700-hp. unit was brought into operation. Provision has been made for an eleventh and final unit which will raise the installed capacity of the entire Beauharnois development to 2,234,700 hp. L'Office de L'Electrification Rurale completed the installation of two units of 1,500 hp. each on the

Magpie River near Magpie Village. The province's total reported installed capacity was increased by a further 60,000 hp. as a result of re-rating of existing equipment at the Aluminum Company of Canada Limited Shipshaw plant on the Saguenay River.

Construction of the Commission's Carillon development on the Ottawa River continued on schedule. Ultimate installed capacity at this site will be 840,000 hp. in 14 units of 60,000 hp. each. The first of these units is scheduled to be installed late in 1962 and the remaining units during the 1963-65 period. At the Commission's Rapid II development on the Ottawa River, plans have been completed for the addition of a 16,000-hp. unit, raising the capacity of the plant to its ultimate total of 64,000 hp. in four units.

First details of a major power plan for the Manicouagan region were announced by the Commission in 1960. This plan, which will involve the harnessing of the headwaters of the Manicouagan and Outardes Rivers, is expected to realize some 3,650,000 hp. at three sites on the Manicouagan River and an additional 1,440,000 hp. at two sites on the Outardes River. In addition, regulation from upstream reservoirs will permit the installation of up to 625,000 hp. of new capacity at existing plants on the two rivers. Construction was initiated in 1961 at one site on the Manicouagan River while work was scheduled to begin in 1962 at a second site. An important engineering feature in the over-all plan will be a buttressed, multi-arch, concrete dam 4,000 feet long and 650 feet high, one of the highest and most massive of its kind in the world. This structure will create a reservoir containing 115,000,000 acre-feet of water and covering 800 sq. miles.

The Shawinigan Water and Power Company commenced clearing operations at its Rapide des Coeurs site on the St. Maurice River where a power plant with an ultimate installed capacity of 210,000 hp. will be constructed. The first stage will be completed in 1965 with an initial installation of four 42,000-hp. units. The Company has also commenced construction of a 300,000-kw. thermal-electric generating station near Sorel on the south shore of the St. Lawrence River. This plant, scheduled to go into operation in 1964, will consist of two 150,000-kw. steam turbines.

Ontario.—During 1961, Ontario's thermal-electric capacity was increased by 500,000 kw. and its hydro-electric capacity by a net total of 144,950 hp. after allowing for the dismantling of a 1,550-hp. hydro-electric plant. Thus, for the second year, the amount of new hydro-electric capacity added in the province was exceeded by the amount of new thermal-electric capacity, a trend which will occur again in 1962.

The Hydro-Electric Power Commission of Ontario was the only power utility in the province to add new electrical capacity or to carry on construction of new generating facilities. The Commission was engaged in the construction or planning of five hydro-electric developments. One of these was the Red Rock Falls development on the Mississagi River where the second and final unit was added, raising the total capacity to 53,000 hp. At the Otter Rapids plant on the Abitibi River, two 60,000-hp. units were placed in service and construction was continued for the installation of two similar units in 1963. Provision has been made for the later installation of four additional units. The three remaining developments are located on the Mattagami River. At one of these, Little Long Generating Station, construction was well under way with two 84,000-hp. units scheduled for service in 1963. Headworks, complete with headgates, will be constructed for the eventual installation of two additional units. Construction of the two other developments, the Harmon and Kipling Generating Stations, had not started by the end of 1961. The three Mattagami River developments, in common with the Otter Rapids Generating Station, will be controlled from the Pinard Transformer Station which is being constructed some 23 miles upstream from Otter Rapids. The Commission proposes to co-ordinate the development of its northern hydraulic resources with the construction of thermal-electric generating facilities in areas of concentrated load. The output of a number of the hydraulic developments will be directed to a terminal station in the north and, from there, to load centres in southern parts of the province by means of extra-high-voltage transmission lines, using voltages more than double those at present employed by the Commission.

Three conventional thermal-electric projects were under construction in the Commission's 1961 program. At the Richard L. Hearn plant in Toronto, the final 200,000-kw. unit was placed in service, bringing the total installed capacity of the station to 1,200,000 kw. in eight units. At the Lakeview Generating Station, also in the Toronto area, the first of six 300,000-kw. units was placed in service late in the year. The remaining units are scheduled to commence operation at the rate of one per year in each of the succeeding five years. A 100,000-kw. unit is scheduled for service in 1962 at the Thunder Bay Generating Station located at Fort William. It will be the first unit to be installed at this site, which is capable of eventual development to a capacity of 1,000,000 kw.

Two nuclear-electric stations—the 20,000-kw. Nuclear Power Demonstration Project near Rolphton and a 200,000-kw. Nuclear Power Station at Douglas Point on the shore of Lake Huron—are being built as joint undertakings of the Commission and Atomic Energy of Canada Limited. The Canadian General Electric Company Limited is also a participant in the Nuclear Power Demonstration Project. The Nuclear Power Demonstration Project will be in service in 1962 and the Douglas Point Nuclear Power Station is scheduled for service in 1965. When the operating characteristics of the Douglas Point station have proved satisfactory, it will be purchased by the Commission at a price which will permit its output to be competitive in price with that of a modern conventional thermal-electric station of similar size.

Prairie Provinces.—In Manitoba, the fifth unit at Manitoba Hydro's Kelsey Generating Station was reported as in service in 1960 but it was not brought into operation until early in 1961. This station has a total capacity of 210,000 hp. in five units and provision has been made for the addition of a sixth unit when required. Power from the Kelsey station supplies the International Nickel Company's mining project in the Moak, Mystery and Thompson Lakes area of northern Manitoba. In the thermal-electric field, Manitoba Hydro placed in service a second 66,000-kw. steam turbine at the Selkirk Generating Station. This completed the initial stage of development and brought the station's total generating capacity to 132,000 kw. The Selkirk site is capable of an ultimate development of as much as 1,000,000 kw.

Construction progressed favourably at the site of Manitoba Hydro's Grand Rapids hydro-electric development on the Saskatchewan River near its mouth on the west shore of Lake Winnipeg. Initial installation at Grand Rapids will consist of three 150,000-hp. units, two of which are scheduled for service late in 1964 and the third in 1965. Provision is being made in the powerhouse substructure for the eventual addition of a fourth unit. Transmission and terminal station facilities, at present either under construction or being planned, will permit power from developments in northern areas to be fed into networks serving the southern parts of the province.

In Saskatchewan, Eldorado Mining and Refining Limited completed and put into service a single-unit, 10,000-hp. hydro-electric development at Waterloo Lake on the Charlot River. The Prairie Farm Rehabilitation Administration continued construction of the South Saskatchewan River Project at the Coteau Creek site. Although this project is being constructed primarily for irrigation purposes, hydro-electric generating facilities will be installed at the dam by Saskatchewan Power Corporation. Initial installation will consist of three units of about 60,000 hp. each, with provision being made for the eventual addition of two similar units. The project is scheduled for completion in 1966. Construction of the Saskatchewan Power Corporation's Squaw Rapids hydro-electric development proceeded at a favourable rate. This development, located on the Saskatchewan River 35 miles northeast of Nipawin, will consist of six units, each rated at 46,000 hp. Installation of four of these units is planned for 1963 and the remainder for 1964.

In Alberta, Calgary Power Ltd. continued construction at its new hydro-electric development at Big Bend on the Brazeau River. The storage dam, which will create a reservoir of 300,000 acre-feet, was nearing completion at the end of the year and water was

being impounded. Initial installation at Big Bend will consist of one 200,000-hp. unit, scheduled for service in 1964. Work continued on the 150,000-kw. addition to the Company's Wabamun steam plant. Installation of this unit, scheduled for completion late in 1962, will raise the total installed capacity of the plant to 282,000 kw. in three units.

Canadian Utilities Limited transferred an 8,500-kw. gas turbine unit from Vermilion to Sturgeon, increasing the total installed capacity of the Sturgeon plant to 18,500 kw. in two units. The total capacity of the Vermilion station was increased to 39,500 kw. in five units by the addition of a 30,000-kw. gas turbine.

The City of Edmonton enlarged its thermal-electric generating station to permit the installation of an additional 75,000-kw. unit. Installation of this unit in 1963 will increase the station's total capacity to 330,000 kw. in nine units.

British Columbia.—In 1961, the Government of British Columbia enacted legislation to bring under public ownership the British Columbia Electric Company and also the interests of the Peace River Development Company, in so far as these interests applied to development of the Peace River hydro-electric project. In addition to filling a role similar to that of the British Columbia Power Commission, also a provincial agency, the British Columbia Electric Company now assumes responsibility for continuing the studies and planning initiated by the Peace River Development Company. During the year, the British Columbia Power Commission completed and placed in operation a 1,000-hp. development on Clayton Creek near Bella Coola. Installation of this unit represented the total increase in the province's hydro-electric capacity in 1961.

The Commission continued an active program of investigation of the Duncan Lake, High Arrow, and Mica storage developments in the Columbia River basin. These three developments, which constitute the basis of the Columbia River Treaty signed on behalf of Canada and the United States in January 1961, would be capable of controlling approximately 20,000,000 acre-feet of usable storage in Canada. The Treaty, not yet ratified by Canada, provides that Canada would receive one-half of the power benefits which result in the United States from the regulation of 15,500,000 acre-feet of this storage and one-half the value of the estimated flood damage prevented in the United States through operation of the projects for flood control.

The Consolidated Mining and Smelting Company of Canada Limited expects to place in service a third 120,000-hp. unit at its Waneta power plant on the Pend d'Oreille River in 1963.

In the field of thermal-electric power generation, the British Columbia Power Commission completed installation of one additional tri-fuel, 3,000-kw., internal combustion unit at Prince George and one at Quesnel. These units, previously scheduled to go into operation in December 1960, were not installed until March 1961. At Prince George, installation of a 3,000-kw. unit, originally scheduled for late 1961, was postponed; however, two 250-kw. units, transferred from an inactive plant, were brought into service at Blue River. In 1962, thermal-electric units varying in size from 250 kw. to 1,000 kw. are scheduled to be installed at a number of locations in the province, including Fort Nelson, Chetwynd, Valemout, Sandspit, Hazelton and Houston. These units, with a combined capacity of 4,700 kw., will be transferred from plants in which they are considered surplus.

Work progressed on the installation of a 26,000-kw. extraction back-pressure turbo-generator unit at the Port Alberni pulp and paper mill of MacMillan, Bloedel and Powell River Limited. This unit is scheduled for operation in November 1962.

The Yukon and Northwest Territories.—Installation of new electric power generating capacity in 1961 by the Northern Canada Power Commission was confined to the Northwest Territories. Three small diesel units with capacities totalling 325 kw. were placed in service at Fort Resolution. Existing generating equipment is considered adequate

to supply present power demand in the Territories and it is unlikely that any new equipment will be installed in 1962. However, to meet anticipated increases in demand, preliminary construction work is expected to begin in 1962 at Frobisher Bay with a view to bringing some 2,000 kw. of new capacity into service within the next four or five years. In all probability, growing requirements for power will warrant the installation of a 1,000-kw. unit at Inuvik, a unit of the same capacity at Fort Smith and a 600-kw. unit at Fort Simpson.

Section 5.—Public Ownership and Regulation of Electrical Utilities*

Federal Government regulation of electrical utilities, particularly with respect to the export of electric power and the construction of lines over which such power is exported, falls within the jurisdiction of the National Energy Board established in November 1959 and concerned with all matters relating to energy resources within the jurisdiction of the Parliament of Canada (see Foreign Trade Chapter XX, Part III, Section 2 for a brief survey of the functions and operations of the National Energy Board).

Power is generated in Canada by publicly and privately operated utilities and by industrial establishments. Table 9, pp. 551-552, giving statistics by type of establishment, shows that 51 p.c. of the total electric power generated in 1960 was produced by publicly operated utilities, 27 p.c. by privately operated utilities and 22 p.c. by industrial establishments. However, ownership differs greatly in different areas of the country. Quebec output, for instance, is predominantly from privately owned plants since a large portion of the power development in that province is connected with pulp and paper establishments and with the aluminum industry. In Ontario, on the other hand, almost all electric power is produced by a publicly owned utility, The Hydro-Electric Power Commission of Ontario.

Because of the absence of free market determination of prices and regulation of services in an industry that is semi-monopolistic, regulation of electrical utilities has been attempted in most provinces. Neither Newfoundland nor Prince Edward Island has a provincially operated electric power system, although in the former province a Commission, known as the Newfoundland Power Commission, was established by the provincial government in 1954 for the purpose of supplying electric power wherever needed throughout the province, particularly to rural areas. In Prince Edward Island, the town of Summerside and surrounding area is served by the municipally operated Town of Summerside Electric Light Department. The functions and activities of provincially operated electric power commissions in the other provinces are summarized in the following paragraphs.

Nova Scotia.—The Nova Scotia Power Commission was created under the Power Commission Act of 1919 with the function of supplying electric power and energy by the most economical means available. The Rural Electrification Act of 1937 greatly increased the possibilities for retail service by providing financial assistance to equalize cost and revenue of extensions approved by the Governor in Council. In 1941 an amendment to the Power Commission Act authorized the Commission, subject to the approval of the Governor in Council, to regulate and control the generation, transmission, distribution, supply and use of power in the province. Certain investigatory work is carried on in the province by the Federal Government in close association with the Commission, but the control of water resources is vested in the Crown and administered under the provisions of the Nova Scotia Water Act, 1919. The Commission pays regular fees for water rights.

Financially, the Commission is self-supporting, repaying borrowings from revenue. The balance sheet at Nov. 30, 1960 showed total fixed assets of \$62,691,094 including work in progress amounting to \$11,358,829. Current assets amounted to \$1,140,572 and liabilities were as follows: fixed \$51,767,021; current \$2,646,975; contingency and renewal reserves \$5,544,253; sinking fund reserves \$9,225,103; and general and special reserves \$3,248,690.

* Revised by the various provincial commissions concerned.

The initial development of the Commission was an 800-hp. installation on the Mushamush River which went into operation in 1921 and delivered 208,752 kwh. in the first complete year of operation. Succeeding years showed a marked growth in installed capacity, which at Nov. 30, 1961 reached 132,650 hp. in hydraulic turbines, 770 kw. in diesel units and 60,000 kw. in steam turbines.

The territory of the Commission extends over the entire province and embraces six systems which include 24 generating stations and more than 4,500 miles of transmission and distribution lines. Power plant construction completed or under way in Nova Scotia during 1961 is outlined at p. 554.

12.—Capacity and Output of the Nova Scotia Power Commission, Year Ended Nov. 30, 1961

System ¹ and First Year of Operation	Present Installed Capacity	Output	System ¹ and First Year of Operation	Present Installed Capacity	Output
	kw.	kwh.		kw.	kwh.
Western Network—			St. Margaret (1921).....	10,400	25,418,900
Harmony (1943).....	600	3,270,000	Mersey—		
Roseway (1930).....	888	3,167,761	Original development		
Gulch (1952).....	6,000	16,235,489	(1928).....	21,780	87,259,000
Ridge (1957).....	4,000	6,072,480	Cowie Falls (1938).....	7,200	35,885,400
Portable (diesel).....	200	—	Deep Brook (1950).....	9,000	39,354,000
Sissiboo (1960).....	6,000	16,753,100	Lower Great Brook (1955).....	4,500	17,435,540
Weymouth (1961).....	9,000	23,165,800	Canseau (diesel) (1937).....	770	20,660
Eastern Network—			Tusket (1929).....	2,160	9,952,518
Barrie Brook (1940).....	360	2,010,610			
Dickie Brook (1948).....	3,800	8,810,160			
Malay Falls (1924).....	3,600	9,521,310			
Ruth Falls (1925).....	6,970	26,782,330			
Liscomb (1957).....	450	2,423,565			
Trenton (thermal) (1951).....	60,000	185,407,400			
			Totals.....	157,678	518,946,023

¹ Hydro unless otherwise noted.

New Brunswick.—The New Brunswick Electric Power Commission was incorporated under the Electric Power Act, 1920. Generating stations owned by the Commission at Mar. 31, 1961 were as follows:—

Plant	Type	Capacity	Plant	Type	Capacity
		hp.			hp.
Grand Falls.....	Hydro.....	84,500	Saint John.....	Steam.....	21,500 ¹
Musquash.....	Hydro.....	9,320	Chatham.....	Steam.....	43,600 ¹
Tobique.....	Hydro.....	27,000	Grand Manan.....	Diesel.....	1,140 ¹
Beechwood.....	Hydro.....	96,500	Campobello.....	Diesel.....	320 ¹
Milltown.....	Hydro.....	3,600			
Grand Lake.....	Steam.....	58,700 ¹	TOTAL CAPACITY.....		346,180

¹ Capacity rating of generators in kw. converted to hp.

All the above generating units with the exception of Grand Manan were interconnected in a province-wide grid system. The statistical information given in Table 13 shows the growth of the Commission's undertakings since 1957.

13.—Growth of the New Brunswick Electric Power Commission, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
High-voltage transmission line...miles	1,121	1,228	1,272	1,396	1,585
Distribution line.....	7,100	7,168	7,286	7,512	7,905
Direct customers.....	No. 76,490	79,550	84,025	100,475	103,029
Plant capacities.....	hp. 166,250	256,720	256,720	346,180	346,180
Power generated.....	kwh. 606,443,490	653,331,610	754,714,180	1,184,798,350	1,273,719,910
Capital invested.....	\$ 90,152,808	100,390,025	104,511,683	132,844,276	148,280,363
Revenue.....	\$ 11,286,117	12,182,120	13,527,290	16,665,153	18,971,596

Power plant construction completed or under way in New Brunswick during 1961 is outlined at p. 554.

Quebec.—*The Quebec Streams Commission.*—Created by SQ 1910, c. 5, and given additional powers in 1912 (RSQ 1925, c. 46) and SQ 1930, c. 34, the Quebec Streams Commission was authorized to ascertain the water resources of the province, to make recommendations regarding their control, and to construct and operate certain storage dams to regulate the flow of streams. It assisted companies engaged in such work by the systematic collection of data on the flow of the principal rivers and on meteorological conditions, by investigation of numerous water power sites and by the determination of the longitudinal profile of a large number of rivers.

On Apr. 1, 1955, the Quebec Streams Commission was abolished and its powers and attributions transferred to the provincial Hydraulic Resources Department. The rivers controlled by the Commission at the time of transfer, either by means of dams on the rivers or by regulating the outflow of lakes at the headwaters, were: the St. Maurice, the Gatineau, the Lièvre, the St. Francis, the Chicoutimi, the Au Sable, and the Métis. The Commission also operated nine reservoirs on North River, two in the watershed of the Ste. Anne de Beaupré River, and one at the outlet of Lake Morin on Rivière du Loup (lower).

Other Reservoir Control.—Storage reservoirs otherwise controlled or operated are: the Lake St. John, the Lake Manouane and Passe Dangereuse on the Peribonca River, and the Onatchiway on the Shipshaw River; Témiscouata Lake on the Madawaska River, controlled by the Gatineau Power Company; Memphremagog Lake on the Magog River, controlled by the Dominion Textile Company; Témiscamingue and Quinze Lakes on the Ottawa River, controlled by the federal Department of Public Works; Kipawa Lake on the Ottawa River, controlled by the Gatineau Power Company; and Dozois Lake on the upper Ottawa River and Pipmoukin Lake in the Bersimis River watershed, controlled by the Quebec Hydro-Electric Commission.

Power developments on the Saguenay River, benefiting from the Peribonca and Lake St. John reservoirs, have a total capacity of 1,950,000 hp.

The Quebec Hydro-Electric Commission.—The Quebec Hydro-Electric Commission was established by SQ 1944, c. 22, with the object of supplying power to the municipalities, to industrial and commercial undertakings and to citizens of the Province of Quebec at the lowest rates consistent with sound financial administration. The Commission at the end of 1961 controlled, among other assets, the following hydro-electric plants:*

<u>Plant</u>	<u>River</u>	<u>Installed Capacity</u> hp.
Cedars.....	St. Lawrence.....	206,400
Sault au Recollet.....	Rivière des Prairies.....	60,000
Beauharnois.....	St. Lawrence.....	2,161,000
Rapid VII.....	Upper Ottawa.....	64,000
Rapid II.....	Upper Ottawa.....	48,000
Bersimis No. 1.....	Bersimis.....	1,200,000
Bersimis No. 2.....	Bersimis.....	900,000
TOTAL HYDRO CAPACITY.....		4,639,400
Gas turbine station.....	Les Boules.....	51,900

The Commission operates a public utility system which supplies the electric light and power requirements of Metropolitan Montreal and surrounding districts, embracing a population of nearly 2,000,000. From the Cedars plant, electric energy is supplied to the Aluminum Company of America at Massena, N.Y., and through the Beauharnois Light, Heat and Power Company power is sold to the Hydro-Electric Power Commission of Ontario. Sales involved are in the neighbourhood of 75,000 hp. to Massena, N.Y., and 250,000 hp. of primary power to Ontario.

* The Commission also purchases 135,000 hp. from the Shawinigan Water and Power Company.

14.—Growth of the Quebec Hydro System, 1952-61

Note.—Figures for the years 1935-46 will be found in the 1950 Year Book, p. 572, and for the years 1947-51 in the 1957-58 edition, p. 579.

Year	Municipalities Served	Customers Served (end of year)	Power Distributed	
			Total	Primary
	No.	No.	hp.	hp.
1952.....	67	395,066	1,620,000	1,462,000
1953.....	67	413,439	1,748,000	1,625,000
1954.....	67	430,774	1,700,000	1,687,000
1955.....	65	451,820	1,760,000	1,725,000
1956.....	65	475,499	2,061,000	1,955,000
1957.....	64	499,005	2,561,000	2,390,000
1958.....	64	521,279	2,736,000	2,671,000
1959.....	63	542,028	3,392,000	2,926,000
1960.....	63	567,621	3,582,000	3,174,000
1961.....	63	593,960	3,773,000	3,310,000

15.—Distribution of Quebec Hydro Primary Power, by Customer Group, 1955-61

(Coincident with Montreal System peak)

System	1955	1956	1957	1958	1959	1960	1961
	hp.	hp.	hp.	hp.	hp.	hp.	hp.
Montreal.....	1,230,000	1,351,000	1,436,000	1,617,000	1,698,000	1,905,000	1,949,000
Beauharnois (local).....	106,000	138,000	265,000	253,000	255,000	208,000	201,000
Beauharnois (Ontario).....	250,000	250,000	250,000	267,000	261,000	261,000	250,000
Massena.....	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Shawinigan Water and Power Company.....	40,000	110,000	198,000	276,000	359,000	452,000	503,000
Gatineau.....	—	20,000	30,000	37,000	50,000	67,000	87,000
Gaspe.....	—	—	35,000	41,000	48,000	51,000	67,000
Northwestern.....	—	—	86,000	86,000	85,000	53,000	56,000
Chibougamau.....	—	—	15,000	19,000	25,000	25,000	27,000
Northeastern (north shore).....	—	—	—	—	70,000	77,000	95,000
Totals.....	1,701,000	1,944,000	2,390,000	2,671,000	2,926,000	3,174,000	3,310,000

The Commission delivers some 65,000 hp. on the south shore of the St. Lawrence River in the Gaspé area—power from its Bersimis plants transmitted across the river through a 69-kv. submarine cable, over a distance of 34 miles. The Commission also purchases about 27,000 hp. from the Saguenay Transmission Company for delivery to mining companies in the Chibougamau area. The recently completed Lac Ste. Anne reservoir on the Toulouste River controls the flow of the Lower Manicouagan River.

Power plant construction completed or under way in Quebec during 1961 is outlined at pp. 554-555.

Ontario.—The Hydro-Electric Power Commission of Ontario is a corporate entity, a self-sustaining public enterprise endowed with broad powers with respect to the supply of electricity throughout the Province of Ontario. Its authority is derived from an Act of the Provincial Legislature passed in 1906 to give effect to recommendations of earlier advisory commissions that the water powers of Ontario should be conserved and developed for the benefit of the people of the province. It now operates under the Power Commission Act (SO 1907, c. 19) passed in 1907 as an amplification of the Act of 1906 and subsequently modified from time to time (RSO 1960, c. 300, as amended). The Commission may have

from three to six members, all of whom are appointed by the Lieutenant-Governor in Council. One commissioner must be, and a second commissioner may be, a member of the Executive Council of the Province of Ontario.

The basic principle governing the financial operations of the Commission and its associated municipal utilities is that electrical service is provided at cost. The Commission interprets cost as including payments for power purchased, charges for operating and maintaining the power systems, and related fixed charges. The fixed charges represent interest on debt, provisions for depreciation, allocations to reserves for contingencies and rate stabilization, and the further provision of a sinking fund reserve for retiring the Commission's capital debt. While the enterprise from its inception has been self-sustaining, the province guarantees the payment of principal and interest on all bonds issued by the Commission and held by the public. In addition, during a period of more than forty years the province has materially assisted the development of agriculture by contributing toward the capital cost of rural distribution facilities.

For the financial and administrative purposes of the Commission, the province is divided into two parts. The roughly triangular part lying south of Lake Nipissing and the French and Mattawa Rivers is served by the Southern Ontario System, a fully integrated power system combining the Niagara, Georgian Bay, and Eastern Ontario Divisions. The System is operated on a co-operative basis predominantly for the benefit of more than 300 municipal electrical utilities supplied with power at cost, but in part also for the benefit of the Rural Power District which it serves. The northern part of the province is served by the Northern Ontario Properties, held and operated for the most part in trust for the province, but operated in part also for the benefit of a group of utilities supplied with power at cost. The Northern Ontario Properties include a North-eastern and a Northwestern Division. Each of these Divisions is an integrated power system, the former being interconnected with the Southern Ontario System.

In addition to administering the enterprise over which it has direct control, the Commission exercises certain regulatory functions with respect to the group of municipal electrical utilities which it serves. In order to provide convenient and expeditious service in this dual function of regulation and supply, the Commission subdivides its province-wide operations into eight regions, six in the south and two in the north, with regional offices located in eight major municipalities. At present the two northern regions coincide with the two northern Divisions.

The Commission is concerned primarily with the provision of electric power by generation or purchase and its delivery in bulk either for resale or for use in the industrial operations of certain customers served directly. Power for resale is delivered to the associated municipal electrical utilities, and to certain interconnected systems, including a number of independent municipal distribution systems, operating within or beyond the provincial boundaries. The industrial customers served directly include mines and industries in unorganized areas. Some power users located within areas served by the municipal utilities are also served by the Commission since their power requirements may be so large, or may create supply conditions so unusual, as to make service by the local municipal utilities impracticable. In total, bulk delivery for resale and for industrial use accounts for about 90 p.c. of the Commission's energy sales. The remaining 10 p.c. of the Commission's sales are made to ultimate customers either in rural areas served on behalf of the townships by the Commission's rural distribution facilities, or in a relatively small group of municipalities served by Commission-owned local distribution systems. In general, however, retail service to ultimate customers in most cities and towns, in many

villages, and in certain populous township areas is supplied by the associated electrical utilities, owned and operated by local commissions and functioning under the general supervision of The Hydro-Electric Power Commission of Ontario as provided for in the Power Commission Act and the Public Utilities Act.

The Commission's power development program as at Dec. 31, 1961 is given in Table 16 and is also outlined at pp. 555-556.

16.—Current Power Development Program of The Hydro-Electric Power Commission of Ontario, as at Dec. 31, 1961

System and Development	Units	In Service	Capacity ¹
	No.		kw.
Southern Ontario System—			
Nuclear Power Demonstration—near Des Joachims Generating Station . . .	1	1962	20,000*
Lakeview—near Toronto	6	1961-66	1,800,000*
Douglas Point Nuclear Power—near Kincardine	1	1965	200,000*
Northern Ontario Properties—			
Northeastern Division—			
Otter Rapids—Abitibi River	4	1961-63	172,000
Little Long—Mattagami River	2	1963	114,000
Harmon—Mattagami River	2	1965	116,000
Kipling—Mattagami River	2	1966	132,000
Northwestern Division—			
Thunder Bay—Fort William	1	1962	100,000*

¹ Capacities quoted are dependable at time of system peak except those marked with an asterisk (*), which are installed capacities.

17.—Resources of The Hydro-Electric Power Commission of Ontario Generated and Purchased (All Systems), December 1959-61

Year and System	Commission's Generating Stations				Power Purchased	
	Hydro-electric ¹		Thermal-electric ¹		kw.	hp.
	kw.	hp.	kw.	hp.	kw.	hp.
December 1959—						
Southern Ontario System	3,979,700	5,334,718	616,000	825,737	618,000	828,418
Northern Ontario Properties—						
Northeastern Division	342,400	458,981	1,800	2,413	1,200	1,609
Northwestern Division	593,900	796,112	—	—	1,700	2,279
Totals	4,916,000	6,589,811	617,800	828,150	620,900	832,306
December 1960—						
Southern Ontario System	3,948,750	5,293,230	994,000	1,332,440	616,000	825,737
Northern Ontario Properties—						
Northeastern Division	368,400	493,834	1,900	2,547	1,200	1,609
Northwestern Division	593,900	796,113	—	—	2,000	2,681
Totals	4,911,050	6,583,177	995,900	1,334,987	619,200	830,027
December 1961—						
Southern Ontario System	3,728,750	4,998,324	1,372,000	1,839,142	616,000	825,737
Northern Ontario Properties—						
Northeastern Division	417,400	559,517	1,600	2,145	1,500	2,011
Northwestern Division	593,500	795,576	—	—	3,000	4,021
Totals	4,739,650	6,353,417	1,373,600	1,841,287	620,500	831,769

¹ Dependable peak capacity—the amount of power which resources can be expected to supply at the time of the system primary peak requirements, assuming that all units are available and that the supply of water is normal. This capacity will vary from time to time in accordance with changing conditions. The capacity of a source of purchased power is based on the terms of the purchase contract.

18.—Distribution of Power to Systems of The Hydro-Electric Power Commission of Ontario, Years Ended Dec. 31, 1956-61

NOTE.—Peak load generated and purchased, primary and secondary, in terms of generation.

System	1956	1957	1958	1959	1960	1961
	kw.	kw.	kw.	kw.	kw.	kw.
Southern Ontario System	4,160,925	4,104,579	4,459,367	4,913,941	5,031,545	5,344,455
Northern Ontario Properties—						
Northeastern Division	391,442	459,117	469,048	550,067	551,661	571,029
Northwestern Division	356,737	406,880	489,121	554,196	574,328	548,448
Totals	4,909,104	4,970,576	5,417,536	6,018,204	6,157,534	6,463,932

19.—Growth of The Hydro-Electric Power Commission of Ontario, 1952-61

Year	Com- munities Served	Ultimate Customers Served Directly or Indirectly	Total Power Distributed ¹	Assets of Commission and Municipal Utilities
	No.	No.	kw.	\$
1952	1,244	1,315,862*	3,330,286	1,442,511,467
1953	1,279	1,389,750	3,480,646	1,687,947,082
1954	1,301	1,467,034	3,778,744	1,883,311,970
1955	1,325	1,540,011	4,436,340	2,040,174,745
1956	1,340	1,612,049	4,909,104	2,293,492,487
1957	1,376	1,674,062	4,970,576	2,563,058,384
1958	1,387	1,757,405	5,417,536	2,756,758,142
1959	1,405	1,830,453	6,018,204	2,909,088,086
1960	1,414	1,881,472	6,157,534	3,044,800,819
1961	1,418	1,938,897	6,463,932	3,196,429,522

* Sum of the maximum 2-hour average load peak loads (primary plus secondary) of each of the systems operated by the Commission, given in terms of net output of the sources of supply to each system for the last month of each fiscal year.

During 1961, the Commission's investment in fixed assets at cost increased by \$100,758,161 and at the end of the year amounted to \$2,461,609,257. Total assets after deducting accumulated depreciation were \$2,779,738,127.

In 1961, a total of 354 municipal utilities engaged in the retail distribution of electricity purchased power from the Commission under cost or fixed-rate contracts. The total assets of these utilities, after deducting accumulated depreciation, amounted to \$698,947,256, of which \$282,255,861 represented the equity acquired in the Commission's systems by the utilities operating under cost contracts.

Manitoba.—Manitoba Hydro came into being on Apr. 1, 1961, as a result of the amalgamation of the previously separate authorities concerned with the generation and distribution of electric power. Manitoba Hydro generates the electric power requirements for almost all of the province except that for use within the corporate limits of the city of Winnipeg, although it does supply a portion of the energy distributed in that area. It distributes electricity directly to most of the consumers in the province outside of Winnipeg, serving 532 cities, towns, villages and hamlets and 42,000 farms.

Plant additions completed or under way in Manitoba during 1961 are outlined at p. 556.

Saskatchewan.—The Saskatchewan Power Corporation was established on Feb. 1, 1949, and operates under the provisions of the Power Corporation Act (SS 1950, c.10) as amended. It succeeded the Saskatchewan Power Commission which had operated from Feb. 11, 1929. The original functions of the Corporation included the generation, transmission, distribution, sale and supply of hydro and steam electric energy. Since 1952, the Corporation has been authorized to produce or purchase and to transmit, distribute, sell and supply natural or manufactured gas.

In 1960, the Corporation served 984 urban communities (with six or more customers) in retail sales, and served the Cities of Saskatoon and Swift Current, the town of Battleford and the hamlet of Waskesiu in bulk sales. Some bulk power was also sold to the City of Regina on an exchange basis. Activities of the Corporation cover the entire province with the exception of the City of Regina, which owns and operates municipal plants and a distribution system. The local steam plant and distribution system of the City of Moose Jaw, originally owned and operated by a private company, were purchased by the Corporation late in 1960.

At the end of 1960, the Corporation served 221,675 customers, 186,843 of whom were retail customers and 34,832 of whom were located in communities supplied with power through bulk sales. The retail customers included 127,751 urban customers and 59,092 customers classified as rural, predominantly farmers. During the year, 1,233,531,753 kwh. were made available to customers, of which 1,230,750,759 kwh. were generated in Corporation plants and 2,780,994 kwh. were purchased in bulk from Regina. At the end of the year, the Corporation had invested, at cost, a total of \$329,184,514 in electric and natural gas plant in service.

During the year, the Corporation owned and operated five steam generating plants—one at Prince Albert and two each at Saskatoon and Estevan; a sixth steam plant was purchased along with the Moose Jaw distribution system late in the year. These plants supplied 87.2 p.c. of total system power requirements and three internal combustion gas dual fuel plants at Kindersley, Swift Current and Unity supplied most of the remainder. Five small diesel plants (at Kamsack, Leader, Hudson Bay, La Ronge and Central Butte) acted mainly as standby plants. Total system capability in operation at the end of 1959 was assessed at 548,060 kw. with 499,000 kw. in steam plants, 45,600 kw. in gas dual fuel units and 3,460 kw. in diesel plants. At the end of 1960, the Corporation owned and operated 66,092 miles of transmission and rural lines (excluding urban distribution and hi-lines). Plant additions completed or under way in Saskatchewan during 1961 are outlined at p. 556.

20.—Growth of the Saskatchewan Power Corporation, 1951-60

Year	Communities Served in Bulk and Retail Sales	Individual Meters in Communities Served	Power Distributed	Revenue
	No.	No.	kwh.	\$
1951.....	535	93,923	278,826,919	7,159,876
1952.....	582	107,942	332,674,176	8,553,619
1953.....	631	122,676	398,211,673	10,363,752
1954.....	664	134,587	472,763,014	11,936,234
1955.....	742	149,134	556,778,981	13,350,177
1956.....	799	162,594	659,720,877	15,566,910
1957.....	870	178,567	780,613,534	18,152,460
1958.....	880	188,293	909,086,820	20,687,771
1959.....	962	197,451	1,067,349,615	23,909,113
1960.....	984	221,675	1,233,531,753	26,667,471

Alberta.—Public ownership of power generating and distributing systems in Alberta is confined to certain urban municipalities. The regulatory authority over privately owned systems is the Board of Public Utility Commissioners which has jurisdiction over the distribution and sale of electricity. The Board has power to hold investigation upon complaint made either by a municipality or by a utility company and, following such investigation, may fix just and reasonable rates. Three private utility companies serve the province; plant additions completed or under way in Alberta during 1961 are outlined at pp. 556-557.

British Columbia.—The British Columbia Power Commission was appointed in April 1945 under the provisions of the Provincial Electric Power Act. Operations were commenced in August of the same year with the acquisition of electrical properties in several parts of the province. The following statement shows the growth in the number of customers from 1952 to 1961:—

<i>Year Ended Mar. 31—</i>	<i>Services Acquired</i>	<i>Services Installed</i>	<i>Total Services for Period</i>	<i>Cumulative Services to End of Period</i>
	No.	No.	No.	No.
1952.....	103	2,600	2,703	45,912
Sold June 1951.....	—325	—640	—965	
1953.....	—	3,597	3,597	49,509
1954.....	—	3,264	3,264	52,773
1955.....	523	3,261	3,784	56,557
1956.....	406	4,382	4,788	61,345
1957.....	4,676	5,525	10,201	69,574
Sold May 1956.....	—337	—1,635	—1,972	
1958.....	—	5,706	5,706	75,280
1959.....	75	4,506	4,581	79,861
1960.....	119	4,324	4,443	84,304
1961.....	393	4,965	5,358	89,662
CUMULATIVE TOTALS.....	33,044	56,618	89,662	89,662

Details of construction completed or under way in British Columbia during 1961 are outlined at p. 557.

21. Growth of the British Columbia Power Commission, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
Customers..... No.	69,574	75,280	79,861	84,304	89,662
Installed plant capacity..... kw.	284,435	324,735	385,771	454,191	468,701
Circuit Miles of Line—					
Transmission (high voltage)... miles	1,009	1,330	1,415	1,578	1,643
Distribution primaries..... "	4,147	4,650	4,049	5,227	5,801
Power Requirements—					
Generated..... kwh.	1,058,915,734	984,810,523	1,597,961,498	1,707,027,382	1,708,237,892
Purchased..... "	25,668,700	228,760,010	46,124,718	51,418,578	78,144,129
Totals, Power Requirements, kwh.	1,084,584,434	1,213,570,533	1,644,086,216	1,758,445,960	1,786,382,021
Annual revenue..... \$'000	11,992	14,524	17,131	19,078	20,610
Capital Investment (plant in operation)—					
Generation plant..... \$	55,595,538	82,844,306	115,743,698	141,075,465	144,646,921
Transmission plant..... \$	20,639,658	24,678,764	28,487,058	32,202,571	34,292,446
Distribution and general plants. \$	25,783,408	30,031,507	32,724,097	36,017,392	40,108,399
Totals, Capital Investment (plant in operation)..... \$	102,018,604	137,554,577	176,954,853	209,295,428	219,047,766

Sources of power for the year ended Mar. 31, 1961 were as follows:—

<i>Source</i>	<i>Power</i>	<i>Percentage of Total</i>
	kwh.	
Hydro-electric plant.....	1,501,270,750	84.0
Diesel-electric plant—		
Oil fuel.....	47,377,956	2.7
Gas fuel.....	159,453,186	8.9
Gas-turbine plant.....	136,000	--
Purchased.....	78,144,129	4.4
TOTALS.....	1,786,382,021	100.0

Northwest Territories and Yukon Territory.—The Northern Canada Power Commission, formerly Northwest Territories Power Commission, was created by Act of Parliament in 1948 to bring electric power to points in the Northwest Territories where a need developed and where power could be provided on a self-sustaining basis. By legislation passed in 1950, the Act was extended to include Yukon Territory. The Commission has authority to construct and operate power plants as required in the Territories and, subject to approval of the Governor in Council, in any other parts of Canada.

The Commission has hydro-electric power developments on the Yukon River near Whitehorse, Y.T., the Mayo River near Mayo Landing, Y.T., and the Snare River north-west of Yellowknife, N.W.T. Diesel-electric plants are operated at Fort Simpson, Fort Smith, Fort Resolution, Frobisher Bay and Inuvik, N.W.T., and at Field, B.C.

The Whitehorse Rapids power development, which has been in service since November 1958, supplies the power for the Department of National Defence at Whitehorse, most of the power for the city of Whitehorse, and the power for heating systems of the Department of National Health and Welfare Hospital and two hostels operated by the Department of Citizenship and Immigration.

The Snare River hydro developments supply power to the mines in the Yellowknife area and, with the Bluefish hydro-electric plant of the Consolidated Mining and Smelting Company of Canada Limited, supply the town of Yellowknife. The original Snare Rapids plant has been in operation since September 1948 and the Snare Falls plant, situated on the same river about 10 miles downstream from the original plant and remotely controlled from Snare Rapids, was placed in service in November 1960.

The Mayo River plant, completed in November 1952, supplies power to mining properties in the Elsa and Keno areas and to the Mayo Landing and Keno City communities.

The diesel-electric plants supply the needs of Federal Government departments and the general public in the communities in which they are located. In addition to these plants the Commission operates a power and heating plant at the Fort McPherson residential school for the Department of Northern Affairs and National Resources, and the municipal water system and central heating plant supplying the hostel and school premises at Fort Simpson, N.W.T. Details of construction completed or under way in the Territories during 1961 are outlined at pp. 557-558.

CHAPTER XIII.—FISHERIES AND FURS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

PART I.—FISHERIES

Section 1.—Commercial Fishery Resources*

The waters of two mighty oceans—the Atlantic and the Pacific—and the most extensive inland system of rivers and lakes in the world provide Canada's fishermen with valuable harvests. The annual catch of some 2,000,000,000 lb. of fish and shellfish has a marketed value of more than \$200,000,000. Only about one-third of this catch is used in Canada, the remainder going abroad in fresh, frozen, canned, salted, dried or otherwise preserved form. Of the fish-exporting nations of the world, Canada is surpassed only by Norway and Japan. There are more than 79,000 commercial fishermen in Canada and, in addition, many thousands of persons are employed in the fish-processing industry.

Atlantic Fisheries.—On the Atlantic Coast, lobster and groundfish, especially cod, are the mainstay of the fisheries, while herring, mackerel and alewives supply a pickling industry that is also of considerable importance. The Atlantic catch is ordinarily about twice as heavy as the Pacific and, generally, is more valuable. In 1961 the lobster catch was close to 48,000,000 lb. with a landed value of \$18,000,000, and cod landings of 518,000,000 lb. had a value to the fishermen of \$15,400,000.

Because of their relatively high unit price, lobsters are the main source of income for fishermen in New Brunswick and Prince Edward Island, and provide about one-third of the value of the Nova Scotia catch. They are taken in baited traps as they crawl about in shallow water looking for food. Most of the catch is marketed alive, fresh boiled or as fresh or frozen lobster meat and the remainder is canned. The United States provides an excellent market with peaks of demand in the summer vacation season and at Christmas. Hitherto unexploited scallop beds, recently discovered on George's Bank off the mouth of the Gulf of Maine, are becoming an increasingly valuable resource.

The cod banks in the Atlantic off Newfoundland are known to fishermen all over the world. Besides cod, they yield other groundfish, mainly haddock, redfish, plaice and flounder. Although two-thirds of the cod catch is landed in Newfoundland, the lesser part of the Island's receipts now comes from the banks. The traditional Newfoundland schooner fishery which formerly supplied the saltfish trade has died out but a very active

* Prepared by the Information and Educational Service, Department of Fisheries, Ottawa.

inshore summer trap fishery, followed by a trawl fishery from small boats in the late summer and early autumn, continues to supply the industry. The bulk of the trap and trawl catches is salted. The family business which combines fishing with processing has disappeared from the Atlantic Coast except in Newfoundland, and even there it is diminishing. Nova Scotia's drying plants depend more and more on raw supplies from Newfoundland, which they receive in salt bulk form. Heavy exports of saltfish go from the Atlantic Provinces to the Caribbean area, with smaller amounts to Italy, Spain and Brazil.

Although schooner fleets are a thing of the past, except for a few vessels sailing from Nova Scotia, modern trawlers and draggers out of ports along the southern coast of Newfoundland and the Atlantic Coast of Nova Scotia fish the banks in all seasons, weather permitting, to supply mixed groundfish to the processing plants in their home ports. These produce fresh and frozen fish and fillets as well as frozen fish blocks to meet a North American demand that increases steadily with the population. Frozen blocks are the raw material of the now important fish-stick industry.

The 1961 Atlantic herring catch was 209,000,000 lb., about one-third of which was comprised of the small-sized herring used by New Brunswick's sardine canneries. Smoke houses and pickling plants produce a variety of herring products and the fish are also in steady demand for lobster bait. The bulk of the catch is taken in purse-seines or weirs. Mackerel and alewives are also utilized by pickling plants but both have provided dwindling catches over the past decade. Mackerel are netted in open water and alewives are trapped as they enter estuaries on their way to freshwater spawning beds.

The Atlantic salmon catch, after a long and fairly steady decline, has been on the increase in recent years. This fish goes exclusively to fresh markets. Before the War, frozen Canadian Atlantic salmon was in demand in Britain but after the War until 1959 it was barred from that market by import restrictions although there was scant surplus for export in any case. In 1959, the import restrictions were lifted and, with improved catches, hopes have risen for resumption of this trade.

Pacific Fisheries.—Salmon is the most valuable of the Pacific fisheries, although the landings of herring are heavier. Halibut is third in importance, followed by other groundfish and shellfish. The proportion of the total landed value provided by salmon gives an indication of the importance of that fishery to British Columbia fishermen. For example, in 1961 the total landed value of the Pacific catch was over \$39,000,000, of which salmon accounted for \$26,000,000. In the high cycle year of 1958, the value of the salmon catch alone was \$37,129,000 and the total landed value was \$51,352,000.

The salmon catch is made up of five species—sockeye, pink, chum, coho and spring. These fish are caught as they return from the sea to their native streams to spawn and die. Sockeye, for instance, return after four years at sea so that, four years after a favourable hatching year on sockeye streams, a heavy catch of this species may be expected. When the peak runs of several different species occur in the same year, fishing is very good. The fish congregate off the mouths of their rivers and move into them in heavy concentrations. Commercial salmon fishing is limited to tide-water and is divided into two efforts—net fishery by seine and gillnet for the canneries and troll fishery for the fresh fish market. Net fishing is pursued in all the protected waters of British Columbia's deeply indented shoreline, and troll fishing off coasts facing the open sea, especially off the western coast of Vancouver Island. Hundreds of seiners and thousands of gillnet and troll boats engage in the fishery every year.

After hatching, sockeye spend a year or two in a lake before going to sea. When caught on their return from the ocean they weigh about six pounds each. This is a summer fishery, usually from mid-June to September. The bulk of the catch is taken by gillnet and the remainder by purse-seine; as sockeye feed on small crustaceans, they are not attracted by the lures of the troll fishery. Landings are smaller than the catch of chums or pinks but more valuable because, with its firm texture and attractive colour, canned sockeye commands the highest consumer price.

Pink salmon mature and return after only two years at sea. The fish average four to five pounds. Both pinks and chums are widely distributed up and down the coast but pinks appear in a more concentrated run. Chums return after four years at sea when they average about ten pounds in weight. They usually appear in two rather scattered runs, one in early summer and one in the autumn, and contribute their share to the total volume of the salmon catch. Coho hatch in small streams and are vulnerable to summer water levels. At sea they grow rapidly to weights between five and ten pounds and return to spawn after three years. They are taken by net or troll for canning or for the fresh market, depending on current demand. Mature spring salmon usually run between ten and twenty-five pounds in weight. Since they feed on small fish, they can, like coho, be taken by lure but about one-third of the catch is secured with gillnets, notably at the mouth of the Fraser. They are usually caught in their third or fourth year and are favoured on the fresh fish market.

About three-quarters of the annual salmon catch is canned and most of the remainder goes to the fresh market. Vancouver and Prince Rupert are the major processing centres.

The main stocks of herring move inshore in the autumn and winter, spawn in the spring and then return to summer feeding grounds offshore. Only small stocks remain on the fishing grounds throughout the year. Consequently, the bulk of the catch is taken from October to March. As the total known supply of this species in British Columbia is being exploited, catches are limited to local quotas by area. Fishing is by purse-seine and the catch is converted into oil and meal, mainly at Steveston, Vancouver or Prince Rupert. The 1961 herring catch was more than double that of the previous year—448,000,000 lb. compared with 187,700,000 lb. in 1960. Fishing operations had ceased for several months during 1960 because of a depressed market for products of this phase of the industry.

While salmon and herring live at mid-water depths, halibut feed on the bottom and are usually caught beyond the three-mile limit. Canadian and American longliners share in this fishery off the coasts of both Alaska and British Columbia and, by joint agreement, the catch is controlled by a system of quotas and fishing seasons in various areas. The most productive halibut grounds on the Continent are those adjacent to British Columbia, and American as well as Canadian vessels, even when fishing off Alaska, usually land at Prince Rupert or Vancouver. The catch amounted to 29,500,000 lb. in 1961, a decrease of 4,400,000 lb. from that of the previous year; however, the landed value at \$6,236,000 was higher by \$837,000 than the 1960 value. Much of the halibut caught is frozen for the fresh market in the United States.

Two other species of bottom-feeding fish—soles and grey cod—are taken by the trawler fleet, usually beyond the three-mile limit either in Hecate Strait or off Vancouver Island. These vessels drag a large-mouthed, tapering net across the ocean floor and scoop up the fish feeding there. They operate mainly in the spring and summer and on smooth bottom in depths between twenty and seventy fathoms. During the winter they pursue a limited fishery in the relatively protected waters of the Strait of Georgia. Ling cod and black cod also feed on the bottom. Small boats rigged with one or two lines and a few hooks take most of the ling cod catch in the Strait of Georgia but further supplies are captured together with other groundfish in course of the trawler fishery. The bulk of the black cod is taken off Alaska by the large longliners that also fish for halibut. These vessels lay their long lines on the ocean floor with hundreds of baited hooks attached to them.

Inland Fisheries.—In 1960 the value of fish from Canadian lakes and streams exported to the United States totalled \$18,976,000. The bulk of the catch comes from the Great Lakes, Lake Winnipeg in Manitoba and Great Slave Lake in the Northwest Territories, but 600 smaller lakes are also fished commercially. Ontario is the heaviest producer, with Manitoba in second place and Saskatchewan in third but output of all western areas is increasing as improved transportation facilities enable fishermen in remote

areas to get their catch to market. Great Slave Lake yields almost all the commercial catch of the Northwest Territories. It supports a gillnet fishery for whitefish and lake trout, with catch limits set by the Federal Government.

Whitefish and pickerel, in approximately equal proportions, together comprise about half the Canadian freshwater catch and perch is next in both quantity and value. Sturgeon and lake trout are valuable additions and tullibee and pike are taken in considerable quantities. A wide variety make up the remaining 10 p.c. of the landings, ranging from the aristocratic goldeye to the lowly chub.

Section 2.—Governments and the Fisheries

The British North America Act gave the Federal Government full legislative jurisdiction for the coastal and the inland fisheries of Canada and under this Act laws are made for the protection, conservation and development of the fisheries throughout the country. However, the provinces have, by agreement, assumed administrative responsibilities in varying degree. Consequently, though all the regulations governing fishing are made by the Federal Government, the work of administering the fisheries (enforcing the different laws and regulations, inspecting fish products, issuing licences, etc.) is done without duplication of staff either by federal or by provincial officers, according to arrangement.

Specifically, all tidal or sea fisheries except those of the Province of Quebec are administered by the federal Department of Fisheries, and the freshwater or non-tidal fisheries, with some exceptions, are administered by the provincial departments. Quebec takes responsibility for all its fisheries including those in salt waters. Ontario, Manitoba, Saskatchewan and Alberta administer their freshwater species. In British Columbia, provincial government control extends to the freshwater forms and the Federal Government is responsible for marine and anadromous species. In Prince Edward Island, Nova Scotia, New Brunswick, Newfoundland and the Yukon and Northwest Territories, the Federal Government maintains complete control; administration of the fisheries of the National Park areas throughout Canada is the responsibility of the Canadian Wildlife Service, Department of Northern Affairs and National Resources.

Subsection 1.—The Federal Government

The work of the Federal Government in the conservation, development and general regulation of the nation's coastal and freshwater fisheries is performed by three agencies under the Minister of Fisheries:—

- (1) The Department of Fisheries proper with headquarters at Ottawa, Ont., and area offices under Area Directors at Vancouver, B.C., Winnipeg, Man., Halifax, N.S., and St. John's, Nfld.
- (2) The Fisheries Research Board of Canada with headquarters at Ottawa and eight stations across Canada.
- (3) The Fisheries Prices Support Board with headquarters at Ottawa.

A brief outline of the functions of these agencies is given in this Subsection.

The Department of Fisheries.—The chief responsibilities of the Department of Fisheries throughout Canada are, in brief: to conserve and develop Canada's primary fishery resources; to encourage the development of the fishing industry in the national economy; to inspect fish products, establish standards of quality and promote the optimum utilization of the resource; and to develop a proper public understanding of the resource and the industry.

The larger part of the staff of the Department is stationed in the field and is composed mainly of protection and inspection officers. The protection officers, including those on the Department's 82 patrol and protection vessels, are concerned with the enforcement

of the conservation regulations under the Fisheries Act and other Acts designed to ensure a continuing maximum yield of fish, and are also responsible for the inspection of fish products and processing plants under the Fish Inspection Act and relevant section of the Meat and Canned Foods Act.

A conservation program is carried out by the Conservation and Development Service of the Department. Protection officers enforce regulations pertaining to restricted areas, close seasons, limitations in location and types of gear, and also inspect spawning streams and keep them clear of obstructions. Biologists investigate such problems as pollution and water supply, and engineers construct fishways to enable fish to bypass obstructions of all kinds. Hatcheries are maintained to restock waters where the fisheries are under federal administration.

For the past few years a bounty has been paid for the killing of the parasite-carrying harbour seals along the Atlantic and Pacific Coasts at a rate of \$10 for adult and \$5 for young seals. Total payments for the year ended Mar. 31, 1961 amounted to \$26,875.

Inspection of fish and fish products to ensure a high standard of quality is carried out by the Inspection and Consumer Service, and fish inspection laboratories are maintained on the Atlantic and the Pacific Coasts and in Toronto and Winnipeg. A staff of home economists operates test kitchens in Ottawa, Toronto, Vancouver, Montreal, Halifax, Edmonton and Winnipeg, and conducts demonstrations and lectures on methods of preparing and cooking fish and fish products.

Through the medium of printed material, films, radio, television and exhibitions, the Information and Educational Service of the Department informs the public on the various aspects of the industry and the work of the fisheries services, with the object of developing a better understanding of the resource and those engaged in its exploitation. This Service works closely with the Conservation and Development Service in matters concerning the conservation of fisheries and with the Inspection and Consumer Service toward encouraging increased consumption of Canadian fish products in the domestic, United States and other markets.

The Economics Service engages in two related fields of responsibility: (1) to provide the government and the commercial fishing industry with current information, including statistical data, under the general heading of trade intelligence, and (2) to carry out studies and investigations in the primary fisheries and in the processing and distribution of fish products. In the first field, the Service works in close co-operation with the Dominion Bureau of Statistics and the Foreign Trade Division of the Department of Trade and Commerce; in the second, there is similar collaboration with the Fisheries Research Board. In both, a necessary contribution is made to the formulation of policy for fisheries management, industrial development and market services.

In addition to these regular services, the Department assists the commercial fishing industry in several special ways. To promote efficient primary fishing operations and improve the marketing of fishery products, assistance is provided for the construction of druggers and longliners and for bait-freezing and storage facilities on the Atlantic Coast. The Fishermen's Indemnity Plan affords low-cost protection from losses of boats and lobster traps through storms and other causes. The Plan, in operation since 1953, meets a long-standing need on the part of small-scale individual fishermen. Vessels valued at from \$250 to \$10,000 may be insured with payment of a premium of 1 p.c. of the appraised value per annum. Up to Dec. 31, 1961, a total of 5,980 vessels with an appraised value of approximately \$19,750,000 had been insured under the Plan. In response to considerable demand for a similar type of protection against unusual losses of fishing gear and equipment other than vessels, a first step was taken by the introduction of regulations giving a measure of compensation to the lobster fisherman suffering abnormal losses of lobster traps, provided that a small premium has been paid by the fisherman. The premium rate varies in accordance with conditions in the different fishing areas but has been kept low. The Department also provides financial assistance to educational institutions agreeing to carry out specialized educational work among fishermen.

International Fisheries Conservation.—Conservation of the resources of the high seas can be effected only through regulation, and for this purpose international treaties have had to be made. Canada's obligations under such treaties with the United States and other countries are administered by the Department of Fisheries.

Canada and the United States have led the world in joint fisheries conservation development. Major examples of this joint effort are the International Pacific Halibut Convention, concerned with the preservation of the halibut stocks of the north Pacific and the Bering Sea, and the International Pacific Salmon Fisheries Convention, concerned with the conservation and development of the sockeye and pink salmon of the Fraser River. Investigations carried out under the auspices of Commissions appointed under these conventions, subsequent regulation and limitation of catches, and the construction of salmon fishways appear to have been successful in arresting and reversing an earlier trend toward depletion of these fisheries. Another example of restoring a depleted marine resource by international agreement and action is that of the fur seals of the Pribilof Islands in the Bering Sea. Under a treaty signed in 1911, known as the (North Pacific) Sealing Convention, pelagic sealing was prohibited while the animals were migrating to and from the Pribilofs where most of them breed. This treaty had been signed by the United States, Canada, Russia and Japan, and was one of the earliest conventions on resources of the sea. In 1941 Japan abrogated the treaty and the following year Canada and the United States signed a Provisional Fur Seal Agreement under which Canada, in return for abstaining from pelagic sealing, received 20 p.c. of the annual catch, which was supervised by the United States. A conference to re-negotiate the original convention was begun in Washington in November 1955 and a new settlement was signed by the original four countries on Feb. 9, 1957.

In 1949 the Government of Canada became a signatory, along with nine other countries, to the International Northwest Atlantic Fisheries Convention which came into force in 1950. The Commission established under this Convention, with headquarters at Halifax, N.S., makes scientific investigations of the fishery resources of the northwest Atlantic. The Commission has no regulatory powers but can make recommendations to the respective governments regarding measures that may be necessary for maintaining the stocks of fish that support the international fisheries in the Convention area. Treaty signatories are: Canada, Denmark, Iceland, the United States, Britain, France, Italy, Norway, Portugal and the Federal Republic of Germany.

A step toward international action in regulating the high seas fisheries of the northern Pacific Ocean was achieved in December 1951 when Canada, the United States and Japan conferred at Tokyo. The resulting Convention was ratified by the three contracting governments and instruments of ratification were deposited at Tokyo in June 1953. The treaty is known as the International Convention for the High Seas Fisheries of the North Pacific Ocean and aims at providing the maximum sustained yield of the fishery resources of the northern Pacific non-territorial waters with each of the parties assuming obligations to encourage conservation measures. The Commission established under this Convention is studying the northern Pacific fisheries and will determine the application of the treaty principles and promote and co-ordinate the necessary scientific studies.

The seventh, and latest, international fisheries agreement to which Canada is a signatory is the Great Lakes Fisheries Convention, which provides for joint action by Canada and the United States in Great Lakes fishery research and in a program for the control of the predator lamprey in these waters. This Convention came into force in October 1955.

Canada is a member of the International Whaling Commission and is obligated to collect biological data on whales caught by Canadian vessels. Whaling operations are conducted in some years off the coasts of Newfoundland and British Columbia.

The Fisheries Research Board.—The Fisheries Research Board of Canada is a research organization established by Act of Parliament for the purpose of conducting basic and applied research on Canada's living aquatic resources, their environment and their utilization. It is the only Canadian federal research agency in this broad field.

The antecedents of the present Board go back to 1898 when a Board of Management of the Canadian Marine Biological Station, consisting of eight university professors and the Commissioner of Fisheries, was created in the Department of Marine and Fisheries. This early organization was formalized by Parliament in 1912 when by special Act it established the Biological Board of Canada. Later, in 1937, as the scope and the research responsibilities of the Board were increased the Act was revised and the Board renamed the Fisheries Research Board of Canada. The Act was revised again in 1952-53, further broadening its scope. Thus the present Fisheries Research Board is a lineal descendant of one of the oldest scientific organizations in Canada and one of the oldest government-supported research organizations under the supervision of an independent scientific board in North America.

By its Act, the Board is placed under the control of the Minister of Fisheries. The Board proper consists of a permanent Chairman, who is appointed by the Governor in Council and who is a member of the Public Service of Canada, and "not more than eighteen other members" holding honorary appointments from the Minister of Fisheries for five-year terms. The composition of the Board is further defined by the Act to require that "a majority of the members of the Board, not including the Chairman, shall be scientists, and the remaining members of the Board shall be representative of the Department [of Fisheries] and the fishing industry". The scientific members are drawn principally from universities and research foundations across Canada, to include specialists in disciplines related to the Board's work. The industry members are selected from among Canada's leading business men with an intimate knowledge of fishing and the fishing industry and the Department of Fisheries representative is usually a senior staff member in Ottawa. Board members have both advisory and executive functions. The advisory functions are delegated in the first instance to regional Advisory Committees who conduct on-the-spot regional reviews and report to the Board on the operations and scientific programs with a view to their improvement. The executive functions are delegated to an Executive Committee elected from Board members and approved by the Minister.

The operations of the Board are highly decentralized, there being only a small administrative, supervisory and publications staff in Ottawa. The Board carries out biological research through five centres across Canada, oceanographic research at two locations and technological studies at five others. The Board employs approximately 800 persons, of whom about 200 are scientists.

Biology.—The Biological program of the Board is designed to add to fundamental knowledge concerning Canada's vast living marine and freshwater resources. Included here are life history, population and behaviour studies leading to a sound scientific basis for the conservation and management of the commercially important fisheries including those for lobsters, crabs, shrimps, oysters, scallops, clams, marine mammals and other well known economically important aquatic species of animals, such as salmon, cod, herring and halibut, as well as some marine plants, such as phytoplankton and seaweeds. Also included are studies in fish and shellfish diseases, fish enemies including the ill effects of water pollution, and such basic studies as fish genetics, physiology and behaviour, these latter with a view to improving fish cultural and farming methods and toward improving fish farm and hatchery stocks. Besides these basic studies, new fishing grounds and new species for exploitation are sought and experiments in improving fishing methods are undertaken.

The biological work on the Atlantic Coast is conducted out of research stations located at St. Andrews, N.B., and St. John's, Nfld.; work on Arctic fisheries and on sea mammals is directed from a laboratory situated in Montreal, Que.; freshwater work is carried out from a station in London, Ont.; and work on the Pacific Coast is directed from research laboratories situated at Nanaimo, B.C. The Board operates 15 research vessels for its biological studies. These vary from small inshore and lake craft to large seagoing ships specially built for this purpose. The Board also acts as Canada's research agent for three international fisheries commissions and two international sea-mammal commissions to which Canada is party.

Oceanography.—Oceanography includes the study of the marine (and freshwater) environment in which aquatic organisms live. This is under continuing study to further knowledge in primary and secondary productivity and the occurrence of ocean and freshwater life of importance to man. Encompassed here also are investigations into the distribution and physical and chemical characteristics of major ocean currents and the physical and biological structure of large ocean areas including the ocean bottom where concentrations of fish and other aquatic life occur. Ocean climate and ocean weather as they affect the distribution of fish and other living organisms as well as the vertical and horizontal distribution of nutrient matter and the cycle of energy and life in the seas are regularly observed and correlated. These studies, as well as special studies of interest to the Royal Canadian Navy, the Department of Transport and the international fishery commissions, are carried out by the Board's two oceanographic groups operating from Halifax, N.S., and Nanaimo, B.C., with strong ship support from the Navy and the Department of Transport.

Technology.—Technological studies in general are aimed at making the best possible use of Canada's fish catches. Investigations are conducted toward improving methods of preserving, processing, storing and distributing fish products, as well as of utilizing all parts of the fish including parts now wasted. These include developments in refrigeration and the use of antibiotics as fish preservatives, of improved refrigerated rail cars for fish distribution, improvements in canning, smoking and salting of fish as well as the development of new products such as protein concentrates (fish flour) and new uses such as the development of wieners for the utilization of abundant species that are now not used for food. Fundamental studies into the structure and composition of fish proteins, fish oils, fish hormones, the energy expenditure of migrating salmon and the nutrition of marine bacteria are also under way. In recent years handling and processing techniques have been investigated for the purpose of increasing over-all production efficiency and improving the product.

Technological investigations on the Atlantic Coast are carried out at Technological Stations situated at Halifax, N.S., and Grande Rivière, Que., and applied work for Newfoundland is under the supervision of a Technological Unit at St. John's. For inland areas there is a Technological Unit in London, Ont., and a Technological Station in Vancouver, B.C., undertakes investigation of Pacific Coast problems.

The Fisheries Prices Support Board.—Under the Fisheries Prices Support Act passed in 1944, this Board was set up in July 1947 to recommend to the Government price-support measures when severe price declines occur. The Board functions under the direction of the Minister of Fisheries and consists of a chairman, who is a senior officer of the Department of Fisheries, and five members chosen from private and co-operative firms in the industry, representative of the various fish-producing regions of Canada.

The Board has authority to buy quality fishery products under prescribed conditions and to dispose of them by sale or otherwise, or to pay to producers the difference between a price prescribed by the Board and the average price the product actually commands. The Board has no power to control prices nor has it any jurisdiction over operations in the fishing industry or the fish trade. Money necessary for dealings in fishery products is available to the Board from the Consolidated Revenue Fund to a maximum amount of \$25,000,000 but only on recommendation of the federal Treasury Board and authorization of the Governor in Council.

The Board maintains a small staff for administrative activities. The work is closely integrated with that of the Department's Economics Service and, where possible, services required by the Board are carried out by Department personnel. The Board has carried out field surveys on market conditions and possibilities and on factors affecting the income of fishermen in the various producing areas. The financial position of fishermen is kept under continuous review and recommendations are made to the Government on the basis of the findings. Special investigations are made when serious problems arise in particular areas.

Subsection 2.—The Provincial Governments*

An outline of the work undertaken by each of the provincial governments in connection with administration of commercial and game fisheries is given in the following paragraphs.

Newfoundland.—The provincial Department of Fisheries in conjunction with the Newfoundland Fisheries Development Authority, a Crown corporation established in 1953, is concerned mainly with improvement and development of fishing and production methods. It conducts experiments and demonstrations in longlining, Danish seining and otter trawling, in the construction of multi-purpose fishing craft, and in the exploration of potential fishing grounds.

Loans are made to processors for the establishment and expansion of fish processing plants and for deepsea draggers and also to fishermen for the construction and purchase of modern vessels capable of a greater variety of fishing operations and larger production. Fishermen receive further aid through bounty payments at the rate of \$160 per ton for newly constructed vessels under the Fishing Ships (Bounties) Act of 1955. The Fishing and Coastal Vessels Rebuilding and Repairs (Bounties) Act was passed in 1958 to enable the government to assist financially in maintaining and prolonging the life of the existing fleet, and in 1959 the Coasting Vessels (Bounties) Act was passed, designed to encourage the construction of new coastal vessels for service in Newfoundland waters by granting a maximum bounty payment of \$300 per ton for locally built ships not exceeding 400 gross tons.

Other services include the operation of fisheries training schools in navigation and engineering, advisory services to fishermen on gear and equipment, industrial research, plant construction, plant engineering and economics, assistance to fishermen's unions, weather and ice reports, and search and rescue. The Fisheries Salt Act passed in 1957 implements more rigid control over the use of fisheries salt.

The inland waters of Newfoundland, although they provide excellent sport fishing, are not commercially exploited. The lakes and ponds remain under the authority of the Natural Resources Branch of the provincial Department of Mines and Resources, but the rivers and streams—the resort of migratory fish such as salmon and sea trout—are under federal control. Matters of conservation and guardianship are therefore mainly or wholly the concern of the federal Department of Fisheries although, to the extent to which they affect the ponds and lakes, they are subject to provincial or joint action.

Prince Edward Island.—The sea and inland fisheries of Prince Edward Island are administered by the Federal Government. The provincial Department of Fisheries supplements federal activity and is concerned mainly with development of the fisheries industry. The Department provides technical assistance and, in conjunction with the Fisheries Research Board of Canada and branches of the federal Department of Fisheries, engages in some experimental work.

Financial assistance is made available to fishermen through the Fishermen's Loan Board of Prince Edward Island, a body corporate operating under the provincial Department. The Fishermen's Loan Board operates under authority given by the Re-establishment Assistance Act and regulations thereunder, approved by the Lieutenant-Governor in Council, Jan. 7, 1949, with amendments. Loans are made to fishermen and companies for the purchase of boats, engines and other deck machinery at an interest rate of 4 p.c. From its reorganization in 1949 until the end of March 1961, the Board has lent approximately \$1,620,000 for the modernization of the inshore and offshore fleets. Loans for the construction or expansion of processing plants are available through the Industrial Establishments Promotion Act under which loans may be made for facilities handling agricultural, horticultural or fishery products.

* Prepared by the respective provincial departments responsible for fisheries administration.

Game fisheries are the responsibility of the Department of Industry and Natural Resources. The streams of the province, mostly spring-fed and fairly constant in flow, provide very favourable conditions for the reproduction of game fish, of which speckled trout is the most important variety. Investigations concerning the production of trout of a size attractive to anglers are being conducted by the Fisheries Research Board of Canada at sites provided by the provincial Department. Unfortunately many of the formerly fertile and highly productive ponds of the province have disappeared, and the provincial Department is actively concerned with damming and restoring these for the enjoyment of the public.

Nova Scotia.—Although the Federal Government has exclusive jurisdiction over the marine and inland fisheries of Nova Scotia and attends to all phases of administration related thereto, the Nova Scotia Government operates in several fields where provincial initiative is found to be necessary and appropriate, having regard for the importance of the fishery resources in terms of employment, industry, trade and recreation.

In the commercial fisheries, provincial government interests are the concern of the Fisheries Division of the Department of Trade and Industry. The Fishermen's Loan Board and the Industrial Loan Board are administered within this Department; the first makes loans to fishermen for the purchase of boats and engines, and the second makes loans for the construction or improvement of fish processing plants. A staff of fisheries engineers performs inspection and survey duties for the Loan Boards and provides technical assistance and advice to loan applicants and others in the fisheries and allied industries, notably the boatbuilding industry. A staff of instructors conducts training courses for fishermen in the care and maintenance of marine engines, in basic navigation and in the design, construction and maintenance of nets and other gear. This program receives substantial assistance from the Vocational Training Branch of the federal Department of Labour. The on-course instruction is supplemented frequently by informal on-the-spot assistance to smaller groups who find themselves in need of technical help with particular problems. The Fisheries Division, with financial and/or technical assistance provided by the Industrial Development Service of the federal Department of Fisheries, also organizes and conducts demonstrations of fishing methods and gear of types untried in some or all of the several fishing areas of the province.

Inland Sport Fisheries.—In recent years, Nova Scotia, through the Wildlife Division of its Department of Lands and Forests, has spent a considerable amount of money on the improvement of certain streams in the province with a view to aiding salmon migration. A system of salmon-rearing ponds has been established on the Medway River in Queens County, capable of producing 500,000 smolts each year, as well as a system of trout-rearing ponds on the Moser River in Halifax County with an annual capacity of 1,000,000 fingerlings. A full-time fisheries biologist is employed by the Division.

New Brunswick.—The fisheries of New Brunswick, both tidal and inland, are under the jurisdiction of the federal Department of Fisheries and angling in Crown waters is under the jurisdiction of the provincial Department of Lands and Mines. To supplement the activities of the federal Department of Fisheries and to establish closer liaison between the fishing industry and various government departments and agencies, both federal and provincial, in all matters relating directly or indirectly to fisheries, the New Brunswick government created in 1946 a Fisheries Branch and a Fishermen's Loan Board within its Department of Industry and Development.

Commercial fishing is one of the most important basic industries of the province. More than 6,500 fishermen and 2,500 plant workers are employed in this industry; the gross yearly income of the fishermen is over \$9,000,000 and the total marketed value of fish products is approximately \$25,000,000. Recognizing its contribution to the economy of the province, the New Brunswick Government appointed, in 1960, a Deputy Minister of Fisheries who is directly responsible to the Minister of Industry and Development in all matters relating to fisheries.

Since its inception, the Fishermen's Loan Board has disbursed more than \$6,000,000 for the construction of fishing vessels and the purchase of modern equipment and diesel motors for fishermen of the province. Loans of \$1,500 to \$2,500 are made available to inshore fishermen for the purchase of lobster boats and engines, and amounts of \$10,000 to \$60,000 to offshore fishermen for the building and equipping of modern longliners, Danish seiners and draggers. These amounts represent the net amount lent to fishermen, which is about 70 p.c. of the total cost of the vessels after deducting the required down-payment and the Federal Government subsidy of \$225 per gross ton. New Brunswick now has a fleet of 92 groundfish draggers and 25 longliners and Danish seiners.

New designs of fishing vessels are under continuing study by the technical staff of the Fisheries Branch in co-operation with naval architects, boatbuilders and fishermen. A certain pattern of standardization is followed to keep building and maintenance costs at the lowest level, because fishing in New Brunswick is generally a marginal operation. Multi-purpose types have been successfully introduced in the inshore fisheries of the Gulf of St. Lawrence area. Modified versions of the 65-foot groundfish dragger equipped with more powerful diesel engines and bigger equipment have proven to be more efficient than the original type. The building of a prototype steel stern dragger has been under study for the past two years and arrangements are being made for the construction of three units at a cost of approximately \$250,000 each. It is expected that the federal subsidy will cover half the cost of these vessels.

Exploratory projects aimed at improving fishing boats and gear are carried out by the Fisheries Branch with the financial and technical assistance of the Industrial Development Service of the federal Department of Fisheries. After a few years of experimental fishing and demonstrations with cod gillnets, Danish seines, mid-water trawls, mechanical clam diggers, etc., these new types of gear are being used by commercial fishermen along the New Brunswick coast. Practical training is made available by the Fisheries Branch to dragger operators and inshore fishermen during the winter season in various parts of the province. A permanent school of fisheries has been in operation, under the auspices of the Caraquet School Board, since the autumn of 1959. Over 30 young fishermen, 17 to 30 years of age, attend the three-year course from November to April each year.

To co-ordinate the efforts of the Atlantic Provinces and the Federal Government in the promotion of fisheries, the federal Department of Fisheries formed a Provincial-Federal Atlantic Fisheries Committee of which the Province of New Brunswick is a member.

Quebec.—From 1911 to early 1962, Quebec's commercial fisheries were administered by the Department of Fisheries and its inland fisheries by the Department of Game and Fisheries (Sport). At the 1962 session of the provincial legislature the two departments were merged into a Department of Game and Fisheries comprising a Division of Commercial Fisheries and a Division of Game and Sport Fisheries.

Commercial Fisheries.—The Quebec Government, through its Department of Game and Fisheries, gives much consideration to the administration of the fisheries of the province. For the benefit of producers and fishermen, it operates a network of cold storage plants for the freezing and preservation of fish. The network comprises 60 plants, together having a daily freezing capacity of 500 tons and a storage capacity of 25,000,000 lb. of fish. These plants also perform a valuable service to fishermen by providing them with frozen bait and ice. In addition, the Ministry owns and maintains 123 stations in small fishing ports where fish is kept under proper conditions while awaiting collecting trucks or boats, and also operates an artificial drying plant with a processing capacity of 3,000,000 lb. of fish annually.

The Department maintains a staff of fish wardens, technicians and technologists to administer fishery legislation and to assist in the application of new techniques for the expansion of the industry. The central administration is located at Quebec City with an office at Gaspé for the administration of cold storage plants. Fish inspection is carried out by federal inspectors who are vested with additional powers by the provincial government with respect to local sales.

Educational work among the fishermen and producers is conducted by the Department to teach the latest methods of fish preparation and of obtaining high-quality products. The Fisheries Training School at Grande Rivière gives to fishermen of all ages the opportunity of taking free theoretical and practical courses in fishery, and the Superior School of Fisheries at Ste. Anne de la Pocatière conducts a four-year course for technologists. Encouragement is given to the co-operative associations of fishermen through the Social Economic Service of the latter institution. Under a maritime credit system, fishermen may obtain loans from credit unions for the purchase of boats and gear. The Department adheres to the federal-provincial agreement on the building of dragners and longliners and assumes the building costs on a capital refunding plan. At the end of 1961 the fishing fleet of Quebec consisted of 65 dragners, 60 longliners (50 of which were of the *Gaspésienne* or small longliner type) and four Danish seiners, representing an investment of \$4,009,153. After deduction of the federal subsidy of \$165 per gross ton, the cost to the fishermen was \$3,358,993. During 1961, investment in the fleet rose by \$359,550 with the owners' share amounting to \$310,324. Late in the year, Quebec launched its first all-steel longliner of domestic design, the *MV Bienvenue*, which has an over-all length of 78 feet and a gross tonnage of 121.7 tons.

The fish trade is promoted through advertising campaigns in newspapers and magazines, cooking demonstrations, educational films and the free distribution of fish recipes and publicity leaflets as well as through exhibits at fairs.

Biological and hydrographical research in the Gulf of St. Lawrence is directed by the Marine Biology Station at Grande Rivière. The Department also operates a Limnological Laboratory at Quebec City for studying the biology of the freshwater fish of the St. Lawrence River and its tributaries. The Quebec Aquarium at Quebec City exhibits freshwater and saltwater fish in 30 large tanks.

Sport Fisheries.—The Division of Game and Sport Fisheries exercises jurisdiction over the inland waters; it employs 350 full-time wardens. Licences are required for sport fishing and hunting, the revenue from which is applied to the improvement of fishing and hunting conditions. Five hatcheries are maintained at strategic points throughout the province—St. Faustin, Lachine, Lac Lyster, Tadoussac and Gaspé. These establishments distribute speckled trout, Atlantic salmon and grey trout fry, maskinonge fingerlings and older fish.

The Division administers five parks and 13 reserves in all of which, except for Mount Orford Park, excellent fishing may be found. Gaspesian and Laurentide Parks are renowned for their trout fishing. Chibougamau Reserve and La Vérendrye Park, situated on the height of land, are eminently suited to canoe trips in search of pickerel, pike and grey or speckled trout. Five salmon streams are open to anglers—the Romaine River, the St. Jean River, the Petite Cascapédia River, the Matane River and the Port Daniel River. The Department co-operates with sportsmen through a joint committee composed of departmental officials and the directors of the larger fish and game associations. The committee studies the maintenance of satisfactory fishing and hunting conditions and other problems arising out of the ever-changing conditions of modern life and their effect on the wildlife of the province.

Ontario.—The fishery resources of Ontario are administered by the Fish and Wildlife Branch, Department of Lands and Forests. The Branch operates under the authority of the federal Fisheries Act, the Special Fishery Regulations for the Province of Ontario, the Ontario Game and Fisheries Act and the Regulations connected therewith.

Commercial Fishing.—The commercial fishing industry in Ontario provides employment for about 3,200 persons directly and for many more indirectly, and produces an annual yield of from 35,000,000 lb. to 45,000,000 lb. of fish. An all-time high catch of about 60,000,000 lb. was recorded in 1956. The industry, although widely scattered throughout the province, is centred chiefly on the Great Lakes, particularly Lake Erie which is the most productive of these lakes. The principal species of fish taken commercially are perch, smelt, whitefish, pickerel, lake trout, white bass, pike, herring, chub, sheepshead, carp, catfish and bullheads, sturgeon, eels, goldeyes, rock bass, sunfish and suckers. Over one hundred smaller inland lakes are commercially fished, principally those in the northwestern portion of the province, and careful management of these lakes is essential to ensure continued production.

The types of fishing boats in use vary from small craft to 60-foot tugs, and types of gear vary from the most common gillnets, pound-nets and trap-nets, seines and baited hooks to small hand-operated seines and dip-nets. Fishing methods and equipment have been modernized extensively during the past few years. Diesel-driven steel-hull tugs have replaced steam-driven wooden tugs, such aids as depth-sounding devices, radar, ship-to-shore and ship-to-ship communications have been developed and a better knowledge of the fish and their movements has been established from biological research findings. Modern icing facilities and transportation methods are in use as well as new types of fishing gear. Trawling for smelt is being carried out experimentally in Lake Erie. This fishing technique is new in the Ontario fishery but has been proven very efficient in harvesting smelt on a year-round basis in this lake.

Most Ontario fishermen are organized into various local associations. These associations are, in turn, represented by the Ontario Council of Commercial Fisheries and by the Lake Erie Fisheries Council, which perform important services to the industry. The Ontario Fishermen's Co-operative and its member groups are of interest also in the organization of the fishery in the province.

Angling.—The sports fishery in Ontario is rapidly becoming one of the major industries of the province. With an estimated freshwater area of some 68,490 sq. miles, the province is one of the most attractive fishing areas on the Continent. Excellent angling opportunities are available for such prized fish as lake, speckled, rainbow and brown trout, yellow pickerel, black bass, pike and maskinonge. It is difficult to measure the total value of the sports fishing industry to the province but the annual revenue from the sale of angling licences alone (mainly to non-residents, as residents require a licence for provincial parks only) is in the neighbourhood of \$2,500,000. The management of this valuable resource is administered by a well-trained field staff of conservation officers and biologists located in the 22 forestry districts of the province.

Provincial Hatcheries.—Ontario operates 20 hatcheries and rearing stations and excellent results have been produced in the culture and distribution of various species of game and commercial fish. The primary species reared in these operations include trout (lake, speckled, brown and rainbow), maskinonge, bass, whitefish and yellow pickerel. Four of the finest trout-rearing stations on the Continent are located in this province—at Dorion near Port Arthur, Sault Ste. Marie, Hills Lake near Englehart, and Chatsworth.

Fisheries Research.—Research in Ontario is carried on in the Great Lakes and in inland waters. At the South Bay Mouth Station on Manitoulin Island in Lake Huron, Wheatley on Lake Erie, and Glenora on the Bay of Quinte on Lake Ontario, fishery biological stations are operated for the investigation and study of the commercial and sports fisheries on the respective lakes. In Algonquin Park, detailed studies concerning lake

trout and smallmouth bass are in progress and management techniques are being tested against the background of a creel census which has been continuous since 1936. Studies of speckled trout have been re-instituted after a five-year break in continuity.

A selective breeding experiment concerning the hybrid between lake trout and speckled trout is progressing favourably. The deep-swimming character of the lake trout and the character of maturity at early age of the speckled trout are those being selected for combination in the hybrid.

Co-operation by Ontario in the field of gear development is being extended through the Federal-Provincial Committee for Ontario Fisheries and in the field of sea lamprey control through the Great Lakes Fishery Commission.

Manitoba.—Manitoba's freshwater fishery resources continue to occupy an important position in the economy of the province and will expand as new lake areas are opened for development through the extension of railway lines and road construction into virgin areas. Total production of commercial fish in 1961 was 31,900,000 lb., the marketed value being \$6,500,000; the primary industry provided full- or part-time employment for some 5,279 fishermen and other related industries, such as fish processing, transportation and boatbuilding, provided employment for at least 6,000 persons.

Manitoba's lakes and streams produce 15 varieties of commercial fish, the most important being whitefish, pickerel, sauger and northern pike. Some 2,500 commercial fishing boats are in operation, varying in size from large lake freighters to skiffs powered by outboard motors. The value of these boats together with nets and other equipment is estimated to be \$3,095,000. The value of cold storage and processing plants represents a further investment in the industry of some \$3,500,000, making a total capital investment of approximately \$6,600,000.

The Department of Mines and Natural Resources of Manitoba, in supervising commercial fishing operations and enforcing fishery regulations, operates a fleet of modern diesel-powered patrol boats during the open-water season and uses bombardier snowmobiles and light trucks in winter. All patrol units are equipped with two-way radio providing ship-to-shore communications.

The management and development of commercial and sport fishery resources of the province includes the operation of fish hatcheries. During 1961, the Whiteshell Trout Hatchery reared and distributed 70,000 yearling trout of various species and more than 563,000 fingerlings were raised and planted. Selected lakes and streams were stocked with trout to improve and diversify sport-fishing opportunities. The Department also operates seasonal hatcheries at Duck Bay and Swan Creek, both designated as pickerel hatcheries. The Dauphin River Hatchery provides eyed whitefish eggs and fry which are planted mainly in commercial waters; limited plantings of this species are also made in sport-fishing waters.

Biological studies and investigations involve pollution, sampling of catch to determine fish growth and past spawning success, yield in terms of a lake's potential, analysis of fishing gear success, productivity and catch quotas, movements and fishing mortality as traced by tagging, and general population dynamics. Lake surveys provide information for administration of the fish harvest and a basis for special fish management and cultural operations. Ecological requirements for fish production have been under study, with special attention given to important commercial and game varieties. Tests of water quality have been related to natural abnormalities, as well as to industrial and domestic wastes. Research is both local and short-term as well as fundamental and extensive and its objective is to provide facts for use in the management and administration of the fisheries resource.

Angling is becoming an increasingly popular sport in Manitoba and recently several virgin lakes have become accessible as a result of road extensions into wilderness areas. During the year ended Mar. 31, 1961 almost 104,000 angling licences were sold, an all-time record; 13 p.c. of the sales were to non-residents.

Saskatchewan.—The major water systems of Saskatchewan include the headwaters of the Missouri to the southwest; the tributaries of the Assiniboia to the southeast; the North and South Saskatchewan of the central portion of the province; the Churchill River system northward; and far beyond, on the rugged Precambrian Shield, tributaries of the great Mackenzie River system. These gigantic watersheds comprise more than 31,500 sq. miles of water and in them at least 57 fish species may be found.

The Fisheries Branch of the Department of Natural Resources, with head office at Prince Albert, is responsible for the administration of the fisheries, for the planning of policies and for the development of programs to ensure their proper management and utilization. The legislative authority under which the fisheries resource is administered is the Department of Natural Resources Act, the Fisheries Act (provincial), and the Fisheries Act (Canada).

The commercial fishing industry during 1961 produced 14,529,537 lb. taken from 205 lakes and having a value of \$1,367,116 to the producer. The principal species were whitefish, lake trout, pickerel, northern pike and sturgeon. The 14 processing plants operating in the province produced 2,533,825 lb. of fillets; seven of these plants have qualified for federal inspection in accordance with the federal Department of Fisheries voluntary fish inspection program. Mention might be made of a unique industry which has developed at Little Manitou Lake. Brine shrimp and eggs are being harvested from this saline lake and processed and packed at Watrous, Sask. These products are sold to pet fish fanciers as well as to commercial fish hatcheries.

During 1961 there were issued 1,394 domestic fishing licences, 782 free Indian permits, and 75 fur farm fishing licences. Mink ranchers used approximately 6,000,000 lb. of coarse fish (cisco, burbot and mullet).

Sport fishing continues to be the main outdoor recreational attraction in the province. During the year, 97,240 angling licences were sold, 89,674 of which were sold to residents.

In the development of the fisheries management program, fisheries research, which commenced in 1948, has been undertaken to provide information on Saskatchewan waters, the life contained therein, and factors influencing that life. Study projects are carried out to determine the productivity of lakes and streams, to secure information on the ecology and life histories of the important species of fish, to investigate pollution and to assess other factors that may affect the environment for fish.

The most important approach is the basic biological survey, in which an inventory of an unsurveyed water body is made. During 1961, 14 major projects were carried out. Fisheries examinations were commenced on a number of smaller Precambrian lakes along the "Roads to Resources" north of La Ronge, as well as on other lakes located throughout the province. Carp research studies were continued, creel census studies instituted on five lakes, and reports covering the survey of six lakes were completed. For the second consecutive year, about 531,000 rainbow trout fingerlings were released in Thomson Lake, a 2,380-acre PFRA reservoir located between Gravelbourg and LaFleche. In addition, about 215,000 rainbow trout fingerlings were released in 16 water areas, 24,100,000 pickerel fry in 59 lakes, 2,850,000 northern pike fry in six lakes and 30,000 lake trout fingerlings in Whiteswan Lake.

Alberta.—Commercial and game fishing is administered by the Fish and Wildlife Division of the Department of Lands and Forests under authority of the Fisheries Act (Canada) and the Fishery Act (Alberta).

Commercial production of fish from Alberta waters in the year ended Mar. 31, 1961 amounted to 16,700,000 lb., 33 p.c. higher than the harvest of the previous year. About 67 p.c. of the 1960-61 production was exported to the United States. Whitefish accounted for about one-third of the take and over one-half of the total market value of \$2,178,000. Other commercially utilized fishes, in order of market value, were: tullibee, walleye, northern pike, lake trout, yellow perch, burbot, suckers and goldeye. Although tullibee represented over 45 p.c. of the total catch, they were used primarily as animal food and so had a relatively low market value. Research and management activities were continued in the fields of basic lake productivity and of population structure and harvest of the more important commercial species. Preliminary biological surveys of watersheds and inventorying of their sport fish resources were continued during 1961 with emphasis on headwater streams in the Athabasca drainage basin. Eleven lakes previously devoid of game fish were stocked with trout and two lakes in which fishing success had deteriorated to a marked degree were treated with chemicals to remove undesirable fish. Golden trout were introduced in two high-altitude lakes in an effort to provide added variety to the province's sport fisheries.

Several stream rehabilitation projects were undertaken. Management of smaller east-slope trout streams continued on the open-alternate-year basis and larger rivers were open to fishing the entire year.

Studies to evaluate trout-stocking policies on lakes were carried out for the third year. Experiments to determine hatchery trout survival in streams were continued at the Gorge Creek biological station, and the rate of recovery of hatchery trout by anglers was studied at two locations in the province. Renovation of the trout-rearing facilities during the year is expected to increase production of hatchery yearling trout by approximately 50 p.c.

British Columbia.—A Fisheries Office, which was organized in 1901-02 and became very active in fish culture work, building and operating fish hatcheries and instituting scientific research into various fishery problems, was superseded in 1947 by the Department of Fisheries which in turn was superseded in 1957 by the Department of Recreation and Conservation. Commercial fisheries are represented today as the Commercial Fisheries Branch of the Department of Recreation and Conservation. Broadly speaking, the administrative and regulative jurisdiction over the fisheries of British Columbia rests with the federal authority. The ownership of the fisheries in the non-tidal waters is vested in the Crown in the right of the province, as are the shell fisheries such as oyster fishing and clam fishing in tidal waters. The province administers these fisheries although the regulations covering them are made under federal Order in Council on the advice and recommendation of the province.

The provincial Fisheries Act provides for the taxation of the fisheries and, under civil and property rights, for the regulation and control of the various fish processing plants under a system of licensing. Provision is also made for arbitration of disputes regarding fish prices that may arise between the fishermen and operators of the various licensed plants. The administration of the Act involves the collection of revenue and the supervision of plant operations.

Regulation and administration of net fishing in the non-tidal waters of the province, including commercial fishing and authority for regulation of the game fisheries in non-tidal waters, is vested in the Fish and Game Branch which operates a number of trout hatcheries and egg-taking stations for restocking purposes.

The Branch co-operates closely with the Fisheries Research Board of Canada. The biological research into those species of shellfish over which the province has control, principally oysters and clams as well as marine plants, is conducted by the Fisheries

Research Board of Canada at the Pacific Biological Station, Nanaimo, B.C., under agreement with the federal and provincial authorities. The object of this research is to encourage the industry to produce better products more economically and to enable the Commercial Fisheries Branch to regulate the various species so that maximum exploitation may be obtained on a sustained-yield basis.

Section 3.—Fishery Statistics

Subsection 1.—Primary Production

The Atlantic Coast fishermen had a very successful year in 1960, recording increases in both quantity and value landed over the previous record attained in 1959. Returns to fishermen amounted to \$59,763,000, 2 p.c. higher than the 1959 total of \$58,436,000. Lobster, for the second consecutive year, was the chief source of income for Atlantic fishermen, having a value of \$18,031,000, and cod remained second with a value of \$16,538,000. Heavier catches of flounder, sole and pollock aided in making 1960 an exceptional year.

Nova Scotia led the Atlantic Provinces with a value of \$26,094,000, followed by Newfoundland with a record-breaking \$15,856,000, New Brunswick with \$9,358,000, Prince Edward Island with \$4,640,000 and Quebec with returns to fishermen of \$4,504,000. An early spring with much of the shoreline free of ice gave the fishermen an early start and heavy landings of groundfish were reported from all areas in May. Newfoundland continued this trend through June and July with a successful cod trap fishery and heavy catches of redfish. Good lobster catches compensated for a decline of the groundfishery in other areas and this scarcity of groundfish remained until early November when haddock suddenly became abundant offshore and dragger fishing out of maritime ports remained good until the end of the year. Good catches of cod and redfish also were reported.

Newfoundland's fishermen received more money from fishing in 1960 than in any other year. The value of landings at \$15,856,000 was 9 p.c. higher than the \$14,529,000 reported for 1959; quantity landed increased 2 p.c. Heavier landings of small flatfishes, redfish and lobster combined with higher unit prices, especially for groundfish, contributed to the record year for Newfoundland fishermen.

Although the 1960 landings of 430,310,000 lb. by Nova Scotia fishermen were 2 p.c. higher than the 423,273,000 lb. reported for 1959, the value of the catch at \$26,094,000 was 4 p.c. lower than the 1959 high of \$27,112,000. Lower unit prices for groundfish, lobster and scallops were mainly responsible for the decline. Lobster was the most important species from a value standpoint at \$8,204,000, followed by cod, haddock and scallops.

New Brunswick fishermen had a good year in 1960. Landings of 232,662,000 lb. were 2 p.c. higher than the 227,994,000 lb. taken in 1959 and the value of the catch at \$9,358,000 increased 7 p.c. from \$8,763,000. A decline in groundfish landings was offset by increased catches of lobster and herring. Lobster at \$4,059,300 was still the big money-maker, accounting for 43 p.c. of the fishermen's returns; herring and cod followed in importance.

Prince Edward Island's 1960 catch was valued at \$4,640,000, 8 p.c. more than the \$4,287,000 recorded for 1959. The lobster fishery, with a value of \$3,212,500, accounted for 69 p.c. of the total value of the Island's fishing industry.

Landings by Quebec fishermen amounted to 98,851,000 lb. in 1960, down 12 p.c. from the 112,954,000 lb. landed in 1959. However, they received higher unit prices for their catch so that its value at \$4,504,000 was 4 p.c. higher than the 1959 total of \$4,316,000. The major species caught was cod valued at \$1,522,000, followed by lobster valued at \$1,154,000.

Pacific Coast fishermen had a poor year in 1960; total landings decreased by 45 p.c. and value by 20 p.c. from the previous year. Salmon reached an all-time low of 75,153,000 lb., a decrease of 29 p.c. from the 1959 total of 105,680,000 lb., although its value decreased only 10 p.c. Good catches of halibut were reported but over-supplied markets lowered the unit value; as a result, returns to fishermen were down slightly although there was a 14-p.c. increase in landings. The herring fishery also suffered. World fish meal markets were over-supplied, prices dropped and plants with large supplies of raw materials carried over from the previous year announced that they would buy no more herring. The outcome was that the herring fleet remained idle until late November resulting in a catch of only 187,675,000 lb., 58 p.c. lower than that of 1959; the value of the catch was down 70 p.c.

1.—Quantity and Value of Sea and Inland Fish Landed, by Province, 1956-60

NOTE.—Figures for the years 1918-55 are given in the corresponding table of previous Year Books, beginning with the 1947 edition.

Province or Territory	1956	1957	1958	1959	1960
QUANTITY					
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	621,560	575,825	464,024	562,228	573,771
Prince Edward Island.....	42,202	39,635	39,078	42,025	42,283
Nova Scotia.....	442,846	438,687	468,462	423,273	430,310
New Brunswick.....	194,283	192,299	160,972	227,994	232,662
Quebec.....	140,110	140,845	123,868	112,954	98,851
Ontario.....	59,710	51,109	47,175	48,984	47,600
Manitoba.....	30,397	31,571	31,929	31,052	31,944
Saskatchewan.....	9,441	11,065	12,600	12,550	14,530
Alberta.....	9,641	10,415	11,482	12,664	15,852
British Columbia.....	674,975	490,187	650,589	613,597	335,040
Northwest Territories.....	6,939	6,584	5,894	5,747	5,543
Totals.....	2,232,104	1,988,222	2,016,073	2,093,068	1,828,386
Sea Fish.....	2,107,508	1,868,633	1,901,460	1,975,856	1,705,362
Inland Fish.....	124,596	119,589	114,613	117,212	123,024
VALUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	14,969	13,672	11,312	14,529	15,856
Prince Edward Island.....	3,949	3,550	3,754	4,287	4,640
Nova Scotia.....	25,038	23,084	24,954	27,112	26,094
New Brunswick.....	8,146	7,014	7,499	8,763	9,358
Quebec.....	4,440	4,068	4,195	4,316	4,504
Ontario.....	7,927	7,047	7,271	4,866	4,983
Manitoba.....	2,947	3,279	3,540	3,757	3,867
Saskatchewan.....	784	939	1,091	1,190	1,367
Alberta.....	790	854	879	1,016	1,159
British Columbia.....	36,058	30,021	51,352	34,995	27,962
Northwest Territories.....	787	720	682	703	702
Totals.....	105,835	94,248	116,529	105,534	100,492
Sea Fish.....	91,944	80,777	102,505	93,431	87,726
Inland Fish.....	13,891	13,471	14,024	12,103	12,766

2. -Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1959 and 1960

Area and Species	Quantity Landed ¹		Value Landed ²		Marketed Value of Products ²	
	1959	1960 ^p	1959	1960 ^p	1959	1960 ^p
	'000 lb.	'000 lb.	\$'000	\$'000	\$'000	\$'000
Atlantic Coast						
Groundfish	971,687	963,806	29,172	28,844	64,163	63,006
Catfish.....	4,161	3,508	127	104	343	309
Cod.....	639,138	604,621	17,023	16,538	33,883	34,821
Flounder and sole.....	91,290	121,434	2,837	3,780	6,153	8,638
Haddock.....	111,997	95,126	4,970	3,685	10,869	8,961
Hake.....	20,771	16,857	386	326	518	540
Halibut.....	6,424	6,618	1,687	1,712	2,200	2,479
Pollock.....	46,302	57,604	920	1,262	3,253	3,092
Redfish.....	40,618	46,859	977	1,172	2,297	2,689
Other.....	10,986	11,179	245	265	4,647	1,477
Pelagic and Estuarial	292,065	297,716	7,669	8,093	22,425	22,955
Alewives.....	11,723	7,673	186	144	498	460
Herring.....	238,916	246,329	3,279	3,682	7,938	6,901
Mackerel.....	9,451	13,138	579	724	1,148	1,218
Salmon.....	3,956	3,577	1,453	1,461	1,994	2,350
Sardines.....	3	3	3	3	7,137	9,026
Smelts.....	3,490	3,443	461	347	750	638
Swordfish.....	6,703	3,890	1,388	1,342	2,139	1,415
Other.....	17,826	19,666	328	393	821	947
Molluscs and Crustaceans	67,306	77,658	20,148	20,862	28,131	33,683
Clams—						
Quahogs.....	898	404	33	16	48	18
Soft-shelled.....	3,959	2,718	201	144	363	280
Lobsters.....	45,714	51,517	17,387	18,031	24,646	28,818
Oysters.....	3,880	3,510	473	403	492	418
Scallops.....	4,909	7,716	1,872	2,021	2,242	3,465
Other.....	7,946	11,793	182	247	320	684
Other	4	4	1,447	1,964	3,099	5,123
Totals, Atlantic Coast	4	4	58,436	59,763	117,818	124,767
Pacific Coast						
Groundfish	41,886	46,424	5,582	5,652	8,230	9,339
Cod.....	7,105	5,244	369	260	630	794
Halibut ⁵	23,799	27,161	4,398	4,379	6,237	6,830
Ling cod.....	4,223	4,516	390	402	510	593
Sablefish.....	586	1,044	88	170	147	254
Sole.....	4,977	7,637	287	407	552	795
Other.....	1,196	822	50	34	154	73
Pelagic and Estuarial	555,010	270,407	28,055	20,843	56,346	41,505
Herring.....	444,032	187,675	7,355	2,178	8,843	3,450
Salmon.....	105,680	75,153	20,503	18,401	45,139	35,963
Chum.....	23,107	20,313	2,800	3,106	6,557	6,736
Coho.....	17,823	12,848	4,498	4,386	9,801	7,437
Pink.....	54,393	16,915	3,796	2,014	11,585	6,657
Sockeye.....	18,018	15,470	6,628	6,463	12,206	11,439
Spring.....	12,214	9,364	3,767	3,580	6,407	4,988
Other.....	125	245	27	62	643	706
Tuna.....	164	468	29	66	2,101	1,940
Other.....	5,134	7,111	168	198	263	152
Molluscs and Crustaceans	15,063	16,976	1,092	1,286	2,174	2,677
Clams, butter, little neck, razor, etc.....	2,744	4,348	75	133	310	535
Crabs.....	4,323	5,068	438	515	1,085	1,200
Oysters.....	6,952	5,879	407	339	471	406
Shrimps and prawns.....	1,044	1,678	172	299	291	528
Other.....	—	3	—	—	17	8
Other	1,638	1,233	266	181	311	462
Totals, Pacific Coast	613,597	335,040	34,995	27,962	67,061	53,893

For footnotes, see end of table.

2.—Quantity and Value Landed and Marketed Value of the Chief Commercial Fish, by Selected Species, 1959 and 1960—concluded

Area and Species	Quantity Landed ¹		Value Landed ²		Marketed Value of Products ²	
	1959	1960 ^p	1959	1960 ^p	1959	1960 ^p
	'000 lb.	'000 lb.	\$'000	\$'000	\$'000	\$'000
Inland						
Freshwater Fish.....	105,194	105,228	11,596	12,030	17,647	18,471
Bass.....	1,445	3,304	216	298	244	335
Catfish.....	1,268	1,234	203	199	227	220
Herring, lake (cisco).....	2,946	2,226	110	82	123	92
Perch.....	20,709	13,814	1,269	1,413	1,453	1,624
Pickrel (blue).....	50	5	15	2	17	2
Pickrel (yellow).....	12,996	13,890	2,994	3,020	4,371	4,600
Pike.....	7,799	7,953	424	457	944	1,093
Saugers.....	4,003	4,741	942	1,048	1,421	1,614
Sturgeon.....	531	518	284	308	319	340
Trout.....	4,533	3,947	627	542	1,149	944
Tullibee.....	9,945	12,582	530	761	747	960
Whitefish.....	24,796	27,068	3,548	3,494	5,941	5,992
Other.....	14,173	13,941	434	406	691	655
Other.....	12,018	17,796	507	736	514	784
Totals, Inland.....	117,212	123,024	12,103	12,766	18,161	19,255
Grand Totals.....	4	4	105,534	100,491	203,040	198,005

¹ Excludes livers.² Includes value of livers and liver products.³ Included with "Herring".⁴ Includes seals, seaweed, etc., quantities of which cannot be added.⁵ Excludes landings by Canadian fishermen in United States ports.

3.—Capital Investment in Primary Sea and Inland Fisheries Operations, 1958-60

Kind of Equipment	1958		1959		1960 ^p	
	No.	\$'000	No.	\$'000	No.	\$'000
Sea Fisheries.....	...	110,418	...	114,886	...	123,861
Vessels 25 tons and over.....	1,006	39,650	918	38,106	999	41,448
Boats under 25 tons.....	40,666	37,929	42,275	44,619	42,941	47,972
Packers, carrying boats and scows.....	509	968	434	1,053	401	846
Herring gillnets.....	44,109	1,265	..	1,015	..	1,197
Mackerel nets.....	22,894	712	..	537	..	591
Salmon nets, traps and seines.....	...	5,604	...	5,307	...	6,025
Smelt nets.....	15,490	620	...	560	...	536
Other nets, weirs and seines.....	...	4,272	...	6,196	...	6,854
Tubs of trawl, skates of gear, hand-lines.....	...	1,506	...	1,250	...	1,227
Lobster traps and pounds.....	2,310,612	8,010	2,448,656	8,463	2,512,057	8,714
Other gear.....	...	2,915	...	1,372	...	1,557
Premises—piers, wharves, freezers, ice-houses, small fish- and smoke-houses.....	...	6,967	...	6,408	...	6,894
Inland Fisheries.....	...	14,439¹	...	16,078¹	...	15,562¹
Carrying boats.....	101	520	129	480	71	431
Gasoline boats, skiffs, canoes.....	6,004	4,894	6,201	5,769	5,972	5,622
Gillnets.....	21,986 ²	4,624	23,120 ²	5,116	22,706 ²	4,900
Other nets, weirs and seines.....	...	1,150	...	1,218	...	1,201
Other gear.....	...	154	...	124	...	146
Premises—piers, wharves, freezers, ice-houses, small fish- and smoke-houses.....	...	2,611	...	2,757	...	2,853
Other equipment—fish tanks, bombardiers, trucks, snowmobiles, aircraft, etc.....	...	486	...	614	...	409
Grand Totals.....	...	124,857	...	130,964	...	139,423

¹ Excludes Alberta.² Thousand yards.

4.—Persons Employed in the Primary Fishing Industry, by Province, 1958-60

Province or Territory	Sea Fisheries			Inland Fisheries		
	1958	1959	1960 ^p	1958	1959	1960 ^p
	No.	No.	No.	No.	No.	No.
Newfoundland.....	18,364	18,430	18,291	—	—	—
Prince Edward Island.....	3,209	3,260	3,274	—	—	—
Nova Scotia.....	13,747	13,012	12,780	—	—	—
New Brunswick.....	6,060	6,211	6,012	160	171	163
Quebec.....	6,213	5,387	4,989	1,064	1,037	1,015
Ontario.....	—	—	—	3,224	3,527	3,409
Manitoba.....	—	—	—	5,682	5,330	5,289
Saskatchewan.....	—	—	—	1,600	1,650	1,700
Alberta.....	—	—	—	7,805	6,089	5,730
British Columbia.....	15,263	15,456	15,159	—	—	—
Northwest Territories.....	—	—	—	539	503	360
Totals.....	62,856	61,756	60,505	20,074	18,307	17,666

Subsection 2.—The Fish Products Industry

The Census of Industry survey of the fish products industry covers establishments engaged in the processing of fish at the secondary industrial level. Some fishermen process the fish they land to a certain degree but their operations are not included nor are the minor amounts of processing done in the inland areas (Ontario, the Prairie Provinces, and the Northwest Territories). In 1960, products of fish processing establishments had a selling value of \$169,530,000, slightly higher than in 1959. The East Coast fish plants contributed \$101,966,000 compared with \$94,499,000 in the previous year and those of British Columbia \$67,564,000 compared with \$74,522,000.

5. Summary Statistics of Seafood Processing Establishments, 1956-60

Item	1956	1957	1958	1959	1960
Establishments..... No.	486	426	431	409	402
Newfoundland.....	43	36	35	36	38
Prince Edward Island.....	30	27	22	20	18
Nova Scotia.....	140	126	138	142	144
New Brunswick.....	147	123	126	99	90
Quebec.....	74	70	66	68	69
British Columbia.....	52	44	44	44	43
Employees..... No.	14,329	13,285	13,193	13,016	13,357
Male.....	10,157	9,433	9,298	9,219	9,394
Female.....	4,172	3,852	3,895	3,797	3,963
Salaries and wages..... \$'000	27,583	27,617	28,367 ^r	28,016	29,718
Fuel and electricity used.....	2,860	2,960	2,852	2,982	2,713
Materials used.....	104,575	97,969	122,633	109,066	103,863
Sales and shipments.....	158,052	150,708	180,784	169,021	169,530

The most important products of the fish products industry are canned salmon for British Columbia and frozen fillets of groundfish for the Atlantic Coast. The greatly reduced salmon catch in 1960, the lowest on record, had its effect on the canned salmon output which dropped to 631,150 cases from the 1959 output of 1,077,487 cases, a decrease of 41 p.c. The value at \$22,767,000 declined 34 p.c.

The frozen groundfish fillet and block production on the Atlantic Coast amounted to 137,530,000 lb., a 3-p.c. reduction from the 142,086,000 lb. produced in 1959; the value at \$30,881,000 was 6 p.c. lower. Smaller catches of cod, haddock and hake and lower unit prices were mainly responsible for the decline. Other important products include dried salted fish, pickled fish, canned sardines and lobster products.

6.—Pacific Coast Production of Canned Salmon, 1956-60

Species	1956	1957	1958	1959	1960
QUANTITY (cases 48 lb.)					
Chum.....	204,071	239,641	230,636	133,129	86,819
Coho.....	212,115	193,058	131,527	213,105	91,505
Pink.....	363,933	751,609	451,802	458,596	219,563
Sockeye.....	320,096	228,452	1,074,304	256,171	226,844
Spring.....	13,713	10,480	10,704	15,230	5,915
Steelhead.....	1,253	1,318	1,205	1,256	504
Totals.....	1,115,181	1,424,558	1,900,178	1,077,487	631,150
VALUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Chum.....	3,925	4,490	3,792	2,662	1,787
Coho.....	6,783	5,497	3,997	7,919	3,908
Pink.....	7,761	15,763	9,437	11,372	5,487
Sockeye.....	12,990	9,265	41,240	12,103	11,407
Spring.....	361	242	252	360	163
Steelhead.....	32	38	31	45	15
Totals.....	31,852	35,295	58,749	34,461	22,767

7.—Atlantic Coast Production of Frozen Fillets and Fish Blocks, 1956-60

Area and Species	1956	1957	1958	1959	1960
QUANTITY					
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Maritimes.....	64,228	65,834	69,639	71,714	67,600
Cod.....	22,504	23,995	26,685	28,674	24,449
Haddock.....	20,227	18,567	16,593	19,868	16,048
Redfish.....	9,340	7,670	8,147	4,957	6,214
Flatfish.....	10,051	12,515	11,845	11,206	15,623
Other.....	2,106	3,087	6,369	7,009	5,266
Quebec.....	7,368	10,243	10,784	11,791	12,483
Cod.....	6,099	8,645	8,779	9,145	9,458
Other.....	1,269	1,598	2,005	2,646	3,025
Newfoundland.....	61,895	52,129	53,975	58,581	57,447
Cod.....	31,312	30,275	22,129	39,688	36,497
Haddock.....	19,619	12,304	8,377	7,971	6,735
Redfish.....	6,154	4,529	7,273	4,087	5,137
Flatfish.....	4,633	4,874	5,864	6,366	8,589
Other.....	177	147	332	469	489
Totals, Atlantic Coast.....	133,491	128,206	134,398	142,086	137,530
Cod.....	59,915	62,915	67,593	77,507	70,404
Haddock.....	39,921	30,917	24,987	28,076	22,913
Redfish.....	16,086	13,198	16,867	10,814	12,887
Flatfish.....	15,245	17,932	18,182	18,197	25,523
Other.....	2,324	3,244	6,769	7,492	5,803

7.—Atlantic Coast Production of Frozen Fillets and Fish Blocks, 1956-60—concluded

Area and Species	1956	1957	1958	1959	1960
	VALUE				
	\$'000	\$'000	\$'000	\$'000	\$'000
Maritimes	12,495	15,056	17,940	17,678	16,019
Cod.....	3,983	4,605	5,815	6,052	4,841
Haddock.....	3,759	4,727	5,116	5,773	4,318
Redfish.....	1,574	1,661	1,894	1,118	1,374
Flatfish.....	2,662	3,256	3,731	3,384	4,665
Other.....	517	807	1,384	1,351	821
Quebec	1,150	1,667	2,001	2,294	2,320
Cod.....	901	1,350	1,586	1,747	1,652
Other.....	249	317	415	547	668
Newfoundland	11,881	10,052	11,508	12,863	12,542
Cod.....	5,646	5,471	6,393	7,885	7,126
Haddock.....	3,703	2,416	1,986	1,972	1,570
Redfish.....	1,172	853	1,466	858	1,012
Flatfish.....	1,321	1,276	1,583	2,037	2,728
Other.....	39	36	80	111	106
Totals, Atlantic Coast	25,526	26,775	31,449	32,835	30,881
Cod.....	10,530	11,426	13,794	15,684	13,619
Haddock.....	7,477	7,151	7,107	7,818	5,918
Redfish.....	2,834	2,669	3,622	2,266	2,639
Flatfish.....	4,121	4,685	5,452	5,602	7,758
Other.....	564	844	1,474	1,465	947

The value of all sea and inland fishery products processed or handled in Canada by processors, handlers or fishermen during 1960 reached a total of \$198,005,000, an amount 2 p.c. lower than the 1959 level of \$203,040,000. The value of Atlantic Coast seafood products was up 7 p.c. compared with the previous year but the value of British Columbia fishery products declined by 20 p.c.

8. Value of All Products of the Fisheries, by Province, 1956-60

NOTE.—Figures for the years 1917-55 are given in the corresponding table of previous Year Books beginning with the 1922-23 edition. Totals for five-year intervals from 1870 are given in the 1956 edition, p. 597.

Province or Territory	1956	1957	1958	1959	1960 ¹
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	29,374	26,750	25,746	31,675	33,783
Prince Edward Island.....	5,246	4,410	5,449	5,961	7,261
Nova Scotia.....	49,363	45,779	50,812	50,367	51,753
New Brunswick.....	22,830	22,293	24,623	28,367	33,130
Quebec.....	7,860	7,580	7,827	7,856	7,622
Ontario.....	8,920	7,928	8,180	5,475	5,606
Manitoba.....	6,426	5,929	6,844	6,689	7,035
Saskatchewan.....	1,766	2,010	2,339	2,596	2,830
Alberta.....	1,306	1,451	1,450	1,684	2,021
British Columbia.....	68,016	63,650	97,016	67,067	53,983
Northwest Territories.....	1,483	1,298	1,235	1,146	1,075
Totals¹	196,577²	188,018	231,540²	203,040	198,005
Sea Fish.....	176,020 ²	168,769	210,931 ²	184,879	178,750
Inland Fish.....	20,557	19,249	20,609	18,161	19,255

¹ Totals in this table differ from provincial totals because salted groundfish (except boneless) are based on sales rather than production; duplications for bloaters are also removed.

PART II.—FURS

Section 1.—The Fur Industry*

Fur Trapping.—The fur wealth of Canada is still a very valuable asset as it has been since the early days of settlement. Despite the rapid development of the country and the consequent exhaustion of fur resources in the settled areas, the belt of Northern Canada extending across the Yukon and Northwest Territories, the northern parts of the Prairie Provinces, through northern Ontario and Quebec and into the Maritime Provinces and Newfoundland is one of the world's few remaining natural reserves for fine furs. At the same time, conservation measures—including the protection of scarce types by limiting the catch or closing the trapping season completely for a time and the establishment of natural preserves—have also been effective in maintaining the numbers of wild fur bearers. Some species are normally subject to marked fluctuations in numbers from one year to another and the numbers of pelts of these types taken annually is notably affected by these cycles. But probably the most important factor governing the numbers taken of any particular species is the fluctuation in demand and price consequent on changes in fashion. Thus the swing to short-haired furs resulted for some time in the almost total neglect of fox and other long-haired furs. Recently these have shown signs of returning to favour but present demand comes mainly from the trimmings trade wherein price is a major consideration, so that price levels for furs in this class are not yet sufficiently attractive to encourage trappers to concentrate on them.

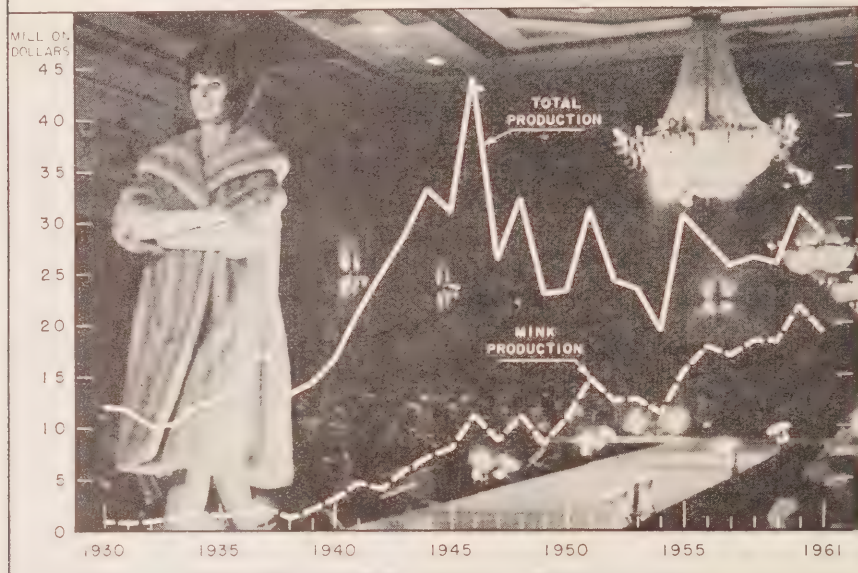
In recent years, prices for most types of wild furs have not kept pace with rising commodity prices; in fact many varieties are bringing less money than they did immediately prior to World War II and, in areas where the population depends largely for its livelihood upon returns from trapping, a great deal of hardship has been occasioned by the two-way drop in purchasing power. The effect of depressed returns has been to force many trappers to abandon their traplines completely for more rewarding employment, and others have become full-time or part-time wage earners, carrying on their trapping activities on week-ends or off days. Thus, with the exception of natives in the more remote areas, few trappers now operate on a full-time basis and this has led to incomplete coverage of the trapping grounds in many parts of the country.

Fur Farming.—During the past decade there has been almost continual growth in mink ranching in Canada. From a total of 589,352 mink pelts produced on 2,557 farms in 1950—an amount that represented a steady increase from the early 1930's when the industry was in its infancy—production by 1960 rose to 1,204,077 pelts, produced on 1,616 farms. At the same time, this increasing production in Canada was equalled or surpassed in other mink-raising regions, notably the United States and the Scandinavian countries, so that in 1961 estimated world production of mink pelts amounted to approximately 15,000,000 and at the outset of the selling season in December 1961 considerable concern was expressed regarding the ability of the market to absorb this very large quantity. However, the tremendous popularity of mink, demand for which has easily surpassed the demand for any other fur, proved equal to the task and the 1961 crop, like its predecessors, was completely moved at firm prices.

On the other hand, the fox ranching industry in Canada, as elsewhere, has fallen upon disappointing times. Production of 2,034 pelts valued at \$20,340 in 1960 contrasted with the production of some 320,000 pelts valued at over \$5,000,000 in 1939. Currently, a modest demand exists for silver and other ranched foxes but prices realized do not come close to meeting the cost of production and the market is showing little signs of improving.

* Prepared by A. Stewart, Chief, Fur Section, Production and Marketing Branch, Department of Agriculture, Ottawa. A more detailed article on the fur industry appears in the 1961 Year Book at pp. 618-622.

VALUE OF MINK PRODUCED, COMPARED WITH VALUE OF ALL
TYPES OF FUR PRODUCED, YEARS ENDED JUNE 30, 1930-61
(WILD AND RANCH-RAISED)



Production of chinchilla pelts, a luxury fur, is increasing slowly in Canada. The first sale took place in 1944 when five pelts brought a total of \$78; in 1960 the 9,067 pelts sold were valued at \$118,416. In the early stages of the chinchilla industry, the promotional element was very active but the worst effects of this have been overcome and the chinchilla is beginning to find a place in the world fur market. Canadian raisers are striving to improve the quality of their pelts in order to take advantage of the demand that exists for fine quality merchandise.

Nutria, the only other fur-bearing animal reported on Canadian fur farms, is raised in limited numbers.

Fur Marketing.—The fur industry contributes about \$25,000,000 annually to Canada's export trade, approximately two-thirds of the total production of pelts going outside the country, principally to the United States and Britain. The majority of Canadian fur skins, both wild and ranch-raised, are sold by auction through one of seven fur auction houses situated across the country. Canadian pelts are traditionally sold in the raw or undressed state, facilitating entry into the many countries which maintain tariffs on imports of dressed furs.

The selling season commences in December with large offerings of fresh ranch mink pelts, and later in the same month quantities of the new season's wild furs become available, including substantial offerings of wild mink. In January and succeeding months, offerings of ranch mink continue and, in addition, quantities of wild furs fresh from the traplines reach the fur auction houses. These include wild mink from the Mackenzie River and Labrador sections and beaver from the Quebec preserves, acknowledged by the trade to be the finest of their types in the world.

Most Canadian ranched mink pelts are shipped directly from farm to auction house where they are sold for the account of the producer, the fur auction house charging a commission for its services, based on a percentage of the selling price. A small percentage of the total catch of wild furs goes direct from the trapper to the auction house. Because most trappers require an outlet close at hand where they can dispose of their pelts immediately in exchange for needed supplies, the bulk of Canadian wild furs passes initially from the trapper to the local dealer who is often the operator of a small country store. Here, furs from many trappers are assembled and may then be shipped to the fur auction house or may await the arrival of a travelling buyer who will add them to his larger collection before shipping.

At the auction sales, furs are purchased by buyers through competitive bidding. In recent years an increasing number of the bidders are overseas members of the trade who come to Canada to fill their requirements. With rapid air transport now available, only a few hours separate them from Canada and their business can be transacted with a minimum of expense and delay. Alternatively, those whose requirements are not sufficiently large to warrant a trip to Canada may engage one of a number of experienced Canadian fur brokers who are experts in their field and fully competent to purchase on behalf of clients.

Section 2.—Provincial and Territorial Fur Resources and Management

Most of the fur resources of the provinces of Canada are under the administration of the respective provincial governments. Exceptions include those resources within the boundaries of the National Parks and the Indian reserves, and the fur resources of the Yukon Territory and the Northwest Territories, all of which are under the administration of the Federal Government. The Canadian Wildlife Service of the Department of Northern Affairs and National Resources (see pp. 37-38) is responsible for all Federal Government interests in wildlife resources except for those activities closely related to Indian affairs. The Service co-operates with provincial governments and other agencies concerned and handles federal interests in relevant national and international problems.

Detailed descriptions of provincial and territorial fur resources and management activities are given in the 1957-58 Year Book, pp. 616-622.

Section 3.—Fur Statistics

Subsection 1.—Fur Production and Trade*

Total Fur Production.—Early records of raw fur production were confined to the decennial censuses when account was taken of the number and value of pelts obtained by trappers. In 1920 the Dominion Bureau of Statistics commenced an annual survey of raw fur production. For a number of years the statistics were based on information supplied by the licensed fur trappers. More recently annual statements based on royalties, export tax, etc., have been made available by the provincial game departments (except Prince Edward Island), and these statements are used in the preparation of the statistics issued annually by the Bureau. Figures for Prince Edward Island are based on returns supplied to the Dominion Bureau of Statistics by fur dealers in that province.

* Revised in the Agriculture Division, Dominion Bureau of Statistics.

**1.—Pelts of Fur Bearing Animals Produced and Percentage Sold from Fur Farms,
Years Ended June 30, 1942-61**

Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms ¹	Year Ended June 30—	Pelts		Percentage of Value Sold from Fur Farms ¹
	Number	Value			Number	Value	
		\$				\$	
1942.....	19,561,024	24,859,869	19	1952 ²	7,931,742	24,215,061	42
1943.....	7,418,971	28,505,033	24	1953.....	7,568,865	23,349,680	43
1944.....	6,324,240	33,147,392	28	1954.....	6,274,727	19,287,522	49
1945.....	6,994,688	31,001,456	31	1955.....	9,670,796	30,509,515	43
1946.....	7,593,416	43,870,541	30	1956.....	7,727,264	28,051,746	56
1947.....	7,486,914	26,349,997	37	1957.....	6,919,724	25,592,130	57
1948.....	7,952,146	32,232,992	37	1958.....	6,440,319	26,335,109	60
1949.....	9,902,790	22,899,882	33	1959.....	5,370,531	25,800,555	62
1950.....	7,377,491	23,184,033	34	1960.....	5,999,414	31,186,078	60
1951.....	7,479,272	31,134,400	36	1961 ²	6,237,594	28,742,458	59

¹ Approximate.² Wildlife pelts for Newfoundland included from 1952.

Ontario continued to lead the provinces in value of fur production, accounting for 26 p.c. of the total in the 1960-61 season. Manitoba followed with 16 p.c., British Columbia with 15 p.c., Alberta 13 p.c., Quebec 10 p.c., Saskatchewan 9 p.c., the Atlantic Provinces 5 p.c., and the Yukon and Northwest Territories combined 5 p.c.

2. Pelts of Fur Bearing Animals Produced, by Province, Years Ended June 30, 1960 and 1961

Province or Territory	1960			1961 ²		
	Pelts	Value	Percentage of Total Value	Pelts	Value	Percentage of Total Value
	No.	\$		No.	\$	
Newfoundland.....	53,844	563,361	1.9	51,995	460,243	1.6
Prince Edward Island.....	3,542	54,151	0.2	4,561	62,807	0.2
Nova Scotia.....	67,083	593,025	1.9	87,387	719,714	2.5
New Brunswick.....	35,430	200,155	0.7	40,554	211,809	0.7
Quebec.....	296,648	2,672,147	8.6	443,484	2,793,299	9.7
Ontario.....	928,640	7,974,547	25.6	1,033,932	7,512,129	26.1
Manitoba.....	675,807	5,180,127	16.6	843,420	4,679,355	16.3
Saskatchewan.....	897,837	3,263,349	10.5	1,104,602	2,674,861	9.3
Alberta.....	1,661,388	4,766,217	15.3	1,471,821	3,781,985	12.2
British Columbia.....	767,646	4,938,540	15.8	722,668	4,421,101	15.4
Yukon Territory.....	182,982	158,232	0.5	116,787	105,031	0.4
Northwest Territories.....	238,539	821,975	2.6	316,340	1,319,748	4.6
Canada ¹.....	5,999,414	31,186,078	100.0	6,237,594	28,742,458	100.0

¹ Totals include a few pelts and their values not allocated to a province or territory.

Although the 6,237,594 pelts taken during 1960-61 represented a 4-p.c. increase over the number taken in the previous year, the total value dropped 8 p.c. from \$31,186,078 to \$28,742,458. Lower average prices for most important types resulted in the decreased value, particularly for standard and mutation mink, beaver and muskrat. In point of numbers, perhaps the most noteworthy increase was made in the sale of white fox pelts which rose from 14,457 in 1959-60 to 51,995 in 1960-61. The number of muskrat pelts sold increased by 182,959, mutation mink pelts by 81,806, standard mink by 77,567 and beaver by 54,693 in the same comparison.

3.—Pelts of Fur Bearing Animals Taken, by Kind, Years Ended June 30, 1960 and 1961

Kind	1960			1961 ¹		
	Pelts	Total Value	Average Value	Pelts	Total Value	Average Value
	No.	\$	\$	No.	\$	\$
Badger.....	1,466	7,819	5.33	827	2,709	3.28
Bear, white.....	544	30,077	55.29	575	34,500	60.00
Bear, other.....	411	2,944	7.16	404	3,297	8.16
Beaver.....	344,766	4,732,573	13.73	399,459	4,725,877	11.83
Coyote or prairie wolf.....	6,948	34,121	4.91	6,156	25,487	4.14
Ermine (weasel).....	276,111	268,612	0.97	197,948	175,223	0.89
Fisher.....	6,462	117,876	18.24	6,206	68,586	11.05
Fox, blue.....	175	1,474	8.42	370	2,813	7.60
Fox, cross and red.....	17,618	57,414	3.26	17,885	50,953	2.85
Fox, silver.....	383	2,035	5.31	349	1,755	5.03
Fox, white.....	14,457	353,386	24.44	51,995	1,013,413	19.49
Fox, not specified.....	34	86	1.94	18	53	2.94
Lynx.....	40,403	704,613	17.44	42,016	449,900	10.71
Marten.....	29,228	194,374	6.65	39,009	205,007	5.27
Mink, standard.....	341,182	6,115,878	17.93	418,749	5,277,143	12.60
Mink, mutation.....	882,306	15,530,735	17.60	964,112	13,942,539	14.46
Muskrat.....	1,562,617	1,303,661	0.83	1,745,576	1,173,642	0.68
Otter.....	15,296	384,953	25.17	17,408	410,781	23.60
Rabbit.....	175,731	109,149	0.62	186,318	122,381	0.66
Raccoon.....	25,015	53,158	2.13	25,266	44,685	1.77
Skunk.....	2,148	1,875	0.87	1,111	738	0.66
Squirrel.....	2,241,771	1,032,937	0.46	2,099,046	834,126	0.40
Wildcat.....	1,336	3,820	2.86	1,326	2,133	1.61
Wolf.....	593	7,199	13.38	773	10,254	13.27
Wolverine.....	503	7,955	15.82	435	6,554	15.07
Other.....	11,964	127,394	...	14,257	151,292	...
Totals.....	5,999,414	31,186,078	...	6,237,594	28,742,458	...

Fur Farm Production.—Fur bearing animals were first raised in Canada on farms in Prince Edward Island about 1887 and in Quebec in 1898; today fur farming is carried on in all the provinces. There was a slow but steady increase in the number of farms until 1920 when 587 were reported, followed by a period of more rapid growth to 1938 when the number reached 10,454 with a production value of \$6,500,000. During the war years many fur farms went out of business and although prices rose considerably after the War, operating costs increased and the number of fur farms, particularly those conducted in conjunction with other farming operations, continued to decrease. By 1960 only 2,331 farms reported but the value of their production was \$17,040,000. Although there were 127 fewer farms in 1960 than in 1959, the number of animals on such farms increased from 536,276 to 559,215 and the number of pelts taken from 5,999,414 to 6,237,594.

4.—Fur Farms and Value of Pelts Produced Thereon, by Province, 1959 and 1960

Province	Fur Farms at Year End		Value of Pelts Produced on Fur Farms	
	1959	1960	1959	1960
	No.	No.	\$	\$
Newfoundland.....	36	35	483,144 ¹	414,222
Prince Edward Island.....	22	20	53,721	62,010
Nova Scotia.....	102	108	477,861	541,993
New Brunswick.....	47	39	96,008	69,542
Quebec.....	333	313	1,037,603	905,155
Ontario.....	686	667	5,143,372	5,042,253
Manitoba.....	271	249	3,514,190	3,078,690
Saskatchewan.....	158	162	1,197,058	1,084,298
Alberta.....	315	294	2,695,834	2,066,631
British Columbia.....	488	444	4,126,460	3,774,563
Totals.....	2,458	2,331	18,825,603¹	17,039,733¹

¹ Includes some pelts not valued by province.

5.—Number of Farms Reporting Fur Bearing Animals, by Kind, as at Dec. 31, 1959 and 1960

Kind	1959		1960	
	Farms	Animals	Farms	Animals
	No.	No.	No.	No.
Fox.....	84	1,783	76	1,576
Mink.....	1,661	494,343 ^r	1,616	516,065
Chinchilla.....	620	34,685 ^r	531	33,514
Nutria.....	142	5,465	158	7,060

6.—Number and Value of Pelts Produced on Fur Farms, by Kind, 1959 and 1960

Kind	1959		1960	
	Pelts	Value	Pelts	Value
	No.	\$	No.	\$
Fox.....	1,183	14,689	2,034	20,340¹
Blue.....	43	653	122	1,220 ¹
Platinum.....	501	6,722	529	5,290 ¹
Silver.....	637	7,304	1,369	13,690 ¹
Unspecified.....	2	10	14	140 ¹
Mink.....	1,053,857	18,698,209	1,204,077	16,888,441
Standard.....	171,551	3,167,474	239,965	2,945,902
Grey.....	67,430	882,052	45,639	622,113
Dark blue.....	74,295	1,445,913	69,902	1,125,482
Light blue.....	234,626	3,917,736	194,863	3,149,766
Brown.....	350,379	6,259,168	476,428	6,279,493
Beige.....	63,615	1,308,746	74,438	1,483,078
White.....	91,961	1,717,120	102,842	1,282,607
Chinchilla².....	8,558	112,705	9,067	118,416
Nutria.....	2,206	..	3,134	12,536²
Other.....	17	..	22	..
Totals.....	1,065,821	18,825,603	1,218,334	17,039,733

¹ Estimated at \$10 per pelt.² Excluding rejects.³ Estimated at \$4 per pelt.

Exports and Imports. The Canadian fur trade, both export and import, is mostly in undressed furs, the value of dressed and manufactured furs going out of or coming into Canada being a comparatively small proportion of the total. Canadian fur exports consist largely of those produced in greatest abundance, mink being by far the most valuable followed by beaver, fox, squirrel and muskrat. Furs such as Persian lamb, mink, muskrat, fox, raccoon, Kolinsky, and sheep and lamb make up the major portion of the imports. Exports and imports of all furs, undressed, dressed and manufactured, from and to the United States, Britain and all countries, are given for the years 1960 and 1961 in Table 7.

7.—Exports and Imports of Furs, by Kind, 1960 and 1961

Kind of Fur	1960			1961		
	Britain	United States	All Countries	Britain	United States	All Countries
Exports						
	\$	\$	\$	\$	\$	\$
Undressed—						
Beaver.....	908,750	2,800,448	4,166,875	1,034,179	2,365,912	4,074,681
Ermine or weasel.....	233,107	68,803	303,891	161,318	29,764	191,213
Fisher.....	62,753	41,578	118,446	32,431	27,749	73,280
Fox, all types.....	41,184	1,106,815	1,150,315	50,456	888,147	943,975
Lynx.....	172,738	229,474	460,910	177,257	192,797	429,288
Marten.....	115,247	175,539	291,002	111,116	153,501	265,925
Mink.....	1,866,424	11,978,318	14,473,665	1,656,172	13,178,153	15,575,451
Muskrat.....	590,860	65,611	685,628	900,320	29,611	1,020,614
Otter.....	12,890	10,421	36,471	6,727	23,278	45,633
Rabbit.....	62	122,238	124,477	—	131,801	144,536
Raccoon.....	33,529	3,216	36,848	17,997	19,216	40,527
Squirrel.....	935,364	4,177	942,375	785,459	748	786,597
Other.....	68,442	286,440	369,811	79,437	273,991	356,914
Dressed—						
Mink.....	65,627	504,386	1,169,006	30,697	71,480	398,004
Other.....				92,326	776,217	1,541,276
Manufactured.....	83,098	267,663	386,100	41,850	271,005	391,235
Totals.....	5,190,084	17,665,127	24,715,820	5,177,742	18,433,370	26,279,149
Imports						
	\$	\$	\$	\$	\$	\$
Undressed—						
China and Jap mink.....	144,734	165	1,030,112	112,033	6,969	476,952
Fox.....	484,357	294,903	1,069,178	284,186	118,959	861,866
Kolinsky.....	117,069	55,044	449,173	160,258	23,109	483,215
Mink.....	128,060	3,770,298	4,501,460	404,294	4,382,555	5,362,532
Muskrat.....	3,476	2,061,954	2,078,342	—	1,249,792	1,249,792
Persian lamb.....	3,549,542	3,306,079	7,664,484	2,841,203	2,988,651	7,501,525
Rabbit.....	—	14,183	82,751	—	28,271	76,073
Raccoon.....	—	395,998	400,525	1,578	542,978	544,556
Sheep and lamb.....	—	225,393	401,469	—	212,130	214,353
Squirrel.....	63,689	31,164	112,628	124,082	11,343	145,822
Other.....	69,134	1,060,116	1,274,929	100,395	992,807	1,250,468
Dressed—						
Rabbit.....	—	14,558	60,645	160	31,659	70,083
Sheep skins.....	1,277	73,394	74,757	12,154	61,452	74,505
Hatters' furs.....	18,943	241,773	513,916	71,677	351,804	846,196
Other.....	231,225	2,388,759	2,790,559	455,900	2,526,810	3,254,547
Manufactured.....	36,830	764,936	953,022	29,126	591,479	742,939
Totals.....	4,848,336	14,698,717	23,457,950	4,597,046	14,120,768	23,155,424

Subsection 2.—The Fur Processing Industry*

The rather general term 'fur processing' includes the fur dressing and dyeing industry and the fur goods industry. The former is concerned with the dressing or dyeing of pelts on a custom basis and the latter is a manufacturing industry that makes up fur goods such as coats, scarves and gloves.

* Prepared in the Industry and Merchandising Division, Dominion Bureau of Statistics.

In 1960 the number of skins treated was 7,182,086, of which muskrat comprised 40 p.c., mink 21 p.c., Persian and other types of lamb 17 p.c., squirrel 5 p.c. and rabbit 2 p.c.

8.—Principal Statistics of the Fur Dressing Industry, 1956-60

Item		1956	1957	1958	1959	1960
Establishments.....	No.	16	16	14	15	17
Employees on Salaries—						
Male.....	No.	97	102	75	82	79
Female.....	"	19	18	15	15	18
Employees on Wages—						
Male.....	No.	777	782	680	766	760
Female.....	"	159	157	138	130	132
Salaries paid.....	\$	600,687	748,838	485,254	612,446	644,420
Wages paid.....	\$	2,655,259	2,639,590	2,439,445	2,799,973	2,997,455
Cost of materials used (dyes, chemicals, etc.)	\$	1,057,850	1,248,961	895,585	1,253,798	1,014,656
Pelts treated.....	No.	9,119,334	8,960,044	8,305,294	7,294,823	7,182,086
Amount received for treatment of furs.....	\$	6,241,696	6,299,336	5,508,408	6,503,695	6,804,986

The major output of the fur goods industry is ladies' fur coats; in 1960 the number was 177,954 valued at \$41,923,830. Principal statistics of the industry for 1956-60 are given in Table 9.

9.—Principal Statistics of the Fur Goods Industry, 1956-60

Item		1956	1957	1958	1959	1960
Establishments.....	No.	522	540	493	480	491
Employees on Salaries—						
Male.....	No.	995	1,007	891	859	849
Female.....	"	243	226	227	238	228
Employees on Wages—						
Male.....	No.	2,199	2,214	1,980	2,000	1,871
Female.....	"	1,214	1,289	1,228	1,164	1,171
Salaries paid.....	\$	4,490,164	4,727,107	4,858,051	4,812,186	4,810,457
Wages paid.....	\$	9,675,793	10,307,339	10,074,811	10,551,044	10,035,045
Cost of materials used.....	\$	39,044,908	38,988,557	37,667,750	38,202,979	36,734,649
Value of factory shipments.....	\$	61,126,085	62,187,649	61,124,191	62,623,385	60,985,273

CHAPTER XIV.—MANUFACTURES

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

This Chapter deals with manufacturing in Canada in three Parts. Part I reviews the changes in manufacturing production during the period 1945-59 followed by an outline of the manufacturing situation in 1960. It also contains a specially prepared treatise on Canada's fast-growing petrochemical industry. Part II provides general statistical analyses including manufacturing statistics from 1917; detailed treatment of production under various groupings and individual industries; and principal factors in manufacturing production such as capital expenditures and size of establishment. Part III deals with the provincial and local distribution of manufacturing production.

Figures for 1960 were available at the time of going to press for most of the tables of Part II, although certain analyses, such as principal commodities produced and manufactures classified by origin and type of ownership, were not yet complete and 1959 is given as the latest year. Similarly, 1959 is the latest year for all provincial and municipal analyses contained in Part III.

PART I.—REVIEW OF MANUFACTURING*

Canada is no longer on the fringes of industrialization but ranks among the world's most important manufacturing countries. The rate of expansion throughout the years has been phenomenal but in the past generation alone Canada has changed from a country producing and exporting mainly primary products to one that is increasingly producing and exporting manufactured goods. Today, manufactures account for about 26 p.c. of the value of all goods and services produced and employ a like percentage of the total labour force.

*Except as otherwise noted, prepared by A. Cohen, Assistant Director, Industry and Merchandising Division, Dominion Bureau of Statistics.

Manufacturing Production during the Period 1945-59

Significant changes in the nature of manufacturing production took place during the 1945-59 period. Emerging in the late 1930's from a depression almost world-wide in scope, the manufacturing industries of Canada entered a period of rapid growth which continued with little interruption throughout the war and postwar years. The problem confronting business economists is to determine how much of the postwar industrial 'drive' was caused by normal growth factors and how much was caused by the backlog of war-accumulated demand. While it is true that the greatest demand accumulation took place in housing and consumer durable goods, non-durable goods such as textiles and clothing also started the postwar period with sizable backlogs of unfilled demand. It is now apparent, after the vigorous pace of business which followed the outbreak of hostilities in Korea in 1950, that a considerable portion of this demand has been satisfied and that some industries, notably textiles, clothing, agricultural implements and certain major appliances, are experiencing difficulties. However, over-all prospects for the near future appear quite favourable. The high level of capital investment during the past few years which greatly increased productive capacity is beginning to be reflected in current production statistics. Large expansion and development programs are still under way in iron ore, aluminum and other metals, oil, chemicals, electric power and in a number of other industries. In addition, Federal Government expenditures for national defence should continue to exert some influence on the economic picture.

In this review the changes in the nature and extent of manufacturing production since the end of World War II are measured by the number of persons employed, salaries and wages paid, and indexes of physical volume of output.

Changes in Employment.—With respect to employment, the most notable feature is the relatively small increase of 15.6 p.c. in the number of persons employed in manufacturing as a whole since 1945 as compared with the 61.2-p.c. increase in the volume of production during the same period. Thus, the average annual increase in employment was approximately 1.0 p.c. as against a 4.0-p.c. increase in output volume. The trend in recent years for the same amount of goods to be produced with fewer employees is being progressively accelerated. As the following figures show, the relatively larger increase in volume than in number of employees was 3.9 p.c. during the 1945-49 period, 13.7 p.c. during the 1949-54 period and 18.6 p.c. during the 1954-59 period. The over-all efficiency increase during the fifteen years was 39.4 p.c.

Period	Employees	Volume of Production	Efficiency of Production
	No.	p.c.	p.c.
1945-49.....	+ 3.6	+ 7.6	+ 3.9
1949-54.....	+ 8.1	+22.9	+13.7
1954-59.....	+ 2.8	+21.9	+18.6
1945-59.....	+15.6	+61.2	+39.4

The advance in efficiency is even more pronounced when the number of *production* workers in manufacturing are considered separately from office and administrative employees. Between 1945 and 1959 there was an increase of 6.6 p.c. in the number of production workers and of 59.4 p.c. in the number of office and administrative employees. Therefore, since the increase in volume of output was 61.2 p.c., the efficiency of production workers increased 51.2 p.c. during the period as compared with an increase of 39.4 p.c. for all employees.

Year	Production Workers	Administrative and Office Employees	Total (excl. Nfld.)
	No.	No.	No.
1945.....	928,665	190,707	1,119,372
1959.....	990,361	303,975	1,294,336
Percentage change.....	+6.6	+59.4	+15.6

There are several reasons why the number of office employees has increased faster than the number of production workers. As already stated, productivity per production worker is much higher than it was fifteen years ago. Also fluctuation in numbers of workers in periods of changing demand is minimized by a growing tendency to put production workers on part time during periods of curtailed production and to attain through overtime work part of the extra volume required during periods of expanding production. The number of general office workers also remains fairly static in the face of fluctuation in output but this category includes professional and technical employees, the number of whom has been increasing rapidly with the expansion in manufacturing production. As an establishment increases in size, it performs more and more of the functions which, when it was smaller, were conducted by independent specialists outside the manufacturing field. For example, an establishment, as it becomes larger, may decide to do its own selling rather than sell through wholesalers. So, without increasing the number of production workers, the office staff is increased to include a sales manager, salesmen and additional clerks. Other administrative functions, such as research and advertising, are being done increasingly by internal staff, also adding to the number of office and administrative employees without corresponding addition to the number of production workers.

All provinces, with the exception of Prince Edward Island, Nova Scotia and New Brunswick, reported increased employment in manufacturing during the 1945-59 period. Alberta led in this respect with an increase of 83.9 p.c. followed by Ontario with an increase of 18.9 p.c. These were the only provinces that had a greater increase than the Canadian average of 15.6 p.c. British Columbia reported an advance of 15.0 p.c., Manitoba 12.5 p.c., Quebec 12.3 p.c., and Saskatchewan 7.9 p.c. Nova Scotia, New Brunswick and Prince Edward Island reported declines of 15.7 p.c., 7.0 p.c., and 4.4 p.c., respectively.

An outstanding feature was the tremendous advance made by Alberta in the production of chemicals, especially petrochemicals, fertilizers, and other new inorganic products such as caustic soda and chlorine. Sizable gains were also made by the food-processing industries and many factories were constructed for producing building materials, transportation equipment, paper products and textiles. This expansion resulted in a great increase in employment in manufacturing, which was more than five times the increase for Canada as a whole.

Changes in Salaries and Wages.—Inter-industry and year-to-year variations in average earnings result from a variety of causes: the length of the standard work week; the number of casual and part-time workers and the hours they worked in the reported week; amounts of overtime worked, and time lost through absenteeism, labour turnover, industrial disputes, lay-offs, etc.; differing occupational requirements; and varying proportions of men and women.

Differences in average earnings are related to the distributions of employees in industries or areas where pay levels vary from the average because of variations in basic pay rates, in sex and occupational distributions, in amounts of bonus or commission payments, in levels of activity, etc. The earnings of salaried men are substantially higher, on the average, than those of other categories, mainly because their numbers include relatively highly paid managerial and professional workers. Women's earnings are generally well below those of men in the same industries, chiefly because of pay and occupational differences, the greater incidence of part-time work and absenteeism among women, and their higher proportion of younger and less experienced workers.

Salaries and wages paid by Canadian manufacturing industries in 1959 totalled \$5,073,073,706, an increase of \$3,227,300,257 or 175 p.c. over 1945, and average annual earnings per employee rose from \$1,649 to \$3,891 or 136 p.c. during the period. Annual earnings of production workers advanced 131 p.c., while those of office employees rose 128 p.c., narrowing the gap between the annual earnings of these groups. In 1945 annual earnings of production workers were 70.2 p.c. of the earnings of office employees and by 1959 the percentage had advanced to 71.0.

There was also a change in the proportion of female workers engaged in manufacturing. During the war years, owing to the shortage of manpower, the proportion went up and by 1945 reached 27.7 p.c. but by 1949 it had dropped to 24.0 p.c. and by 1954 to 22.6 p.c.; in 1959 it rose again slightly to 22.8. In comparing annual earnings of one industry with another, the proportion of female workers employed by each must be considered since female workers as a group are paid lower wages than male workers. Industries made up of a large number of small establishments and in which the proportion of female workers is high consequently have lower average annual earnings. Cotton yarn and cloth, fruit and vegetable preparations, women's factory clothing, leather footwear and men's factory clothing are the more important industries in this category.

Interesting comparisons are obtained by comparing salary and wage payments with value added by manufacture. Value added is obtained by subtracting the cost of materials, including fuel and electricity, from the gross value of products. The difference represents the value added by labour to the materials while they are in the factory. Such added values constitute the real production of the manufacturing plant and are alone available for the payment of salaries and wages, interest, rent, taxes, repairs and all other overhead charges that ordinarily must be met, as well as profits. The value added by manufacture reported by the various industries can be added to produce a non-duplicating total for manufacturing as a whole. Being free of duplication within the manufacturing sector, value added figures are, therefore, more representative of the total value of manufacturing production than are gross value of production figures.

The following figures show that the proportion of salary and wage payments to value added is more or less constant, the average annual change during the past fifteen years was only one-fifth of one per cent, dropping from 51.8 in 1945 to 49.2 in 1959. The proportion of office payments rose from 11.7 to 14.9 while production payments dropped from 40.1 to 34.3 during this period. The ability to increase prices in proportion to increases in salaries and wages no doubt accounts for this phenomenon.

Year	Proportion of—		
	Office Payments to Value Added	Production Payments to Value Added	Total Payments to Value Added
	p.c.	p.c.	p.c.
1945.....	11.7	40.1	51.8
1949.....	11.8	36.8	48.6
1954.....	13.6	35.7	49.3
1959.....	14.9	34.3	49.2

Average annual earnings in 1959 for all employees totalled \$3,891, an increase of 136 p.c. over the 1945 average of \$1,642. In 1959 British Columbia and Ontario, with average annual earnings of \$1,165, were the highest paying provinces, British Columbia having a slight margin over Ontario. Alberta ranked third, followed in order by Saskatchewan, Quebec, Manitoba, Newfoundland, Nova Scotia, New Brunswick and Prince Edward Island. The high figure shown for the Yukon and Northwest Territories is not representative because of the unusual conditions under which industry is carried on in those Territories.

As already mentioned, a notable feature during the past twenty years was the reduction in the disparity between average annual earnings of office and production workers. Whereas in 1939 average annual earnings of production workers were only 56 p.c. of the earnings of office employees, in 1943 the percentage rose to 76, declined to 69 in 1947 and rose again to 71 in 1959. This tendency toward equalization was caused, in part, by the controls adopted by the Federal Government during the war years which tended to stabilize earnings of office workers more than earnings of production workers. The increase in average earnings of production workers was also influenced by the fact that large numbers were employed in the highly paid iron and steel industries and by the increase in the number of hours worked, some at overtime pay. Another factor that influences annual earnings is the

number of females employed. Ontario has a larger proportion of females among its office employees than any other province and the same situation prevails in Quebec with regard to production workers owing, no doubt to the heavy concentration of textile establishments in that province. Of all female production workers engaged in manufacturing in 1959, 41 p.c. were in the textile and clothing group.

All provinces reported higher annual earnings in 1959 than in 1945, the increases ranging from 158 p.c. in Saskatchewan to 101 p.c. in Nova Scotia. Some significant changes took place in the ranking of the provinces during the period. In 1945 British Columbia with \$1,823 was in first place and exceeded by \$120 the annual earnings in Ontario which was second; in 1959 these two provinces remained in first and second places. Alberta and Saskatchewan bettered their positions but Manitoba, Quebec and Nova Scotia dropped behind. New Brunswick and Prince Edward Island showed no change, being in eighth and ninth places, respectively, in both years.

Province or Territory	Average Annual Earnings		Increase 1945-59	Rank	
	1959	1945		1959	1945
	\$	\$	p.c.		
Newfoundland.....	3,169	2,233 (1949)	140	...	...
Prince Edward Island.....	2,180	907	140	9	9
Nova Scotia.....	3,113	1,547	101	7	5
New Brunswick.....	3,052	1,440	112	8	8
Quebec.....	3,587	1,582	127	5	3
Ontario.....	4,165	1,705	145	2	2
Manitoba.....	3,569	1,559	129	6	4
Saskatchewan.....	3,751	1,455	158	4	7
Alberta.....	3,859	1,525	153	3	6
British Columbia.....	4,165	1,823	128	1	1
Yukon and Northwest Territories.....	5,305	1,983	167	...	...
CANADA.....	3,891	1,649	136		

Tables 1 and 2 give comparisons of earnings by province and industrial group for the period 1946-59 since the industrial breakdown is not available for 1945 in comparable form. Table 1 shows that annual earnings of production workers averaged \$3,551 in 1959, an increase of 134 p.c. over the earnings reported in 1946. Production workers in British Columbia received an average of \$3,918 in wages, the highest amount in Canada, and those in Ontario received \$3,814. On the other hand, Prince Edward Island with \$2,005 paid the lowest annual wages in Canada.

For Canada as a whole, weekly earnings of production workers were 120 p.c. higher in 1959 than in 1946 and hourly earnings were 132 p.c. higher. Hourly earnings increased steadily each year although at a progressively declining rate; between 1946 and 1949 the increase was 32 p.c., between 1949 and 1954, 43 p.c., and between 1954 and 1959, 23 p.c.

Industries producing durable goods generally have higher earnings than the industries producing non-durable or consumer goods. All industrial groups reported increases in annual earnings between 1946 and 1959, ranging between 189 p.c. for tobacco and tobacco products and 89 p.c. for clothing. In 1959 production workers in the products of petroleum and coal group received the highest average annual earnings, amounting to \$5,185. Transportation equipment was in second place with an annual average of \$4,328, 17 p.c. less than the leading group.

Annual earnings of administrative and office employees averaged \$4,998 in 1959, an increase of 120 p.c. over the 1946 annual earnings which amounted to \$2,270. This category of employees in Ontario received the highest average, at \$5,217, followed by those in British Columbia with \$5,118 and Quebec with \$4,910. Prince Edward Island paid the lowest average annual salary of \$2,683. The fact that head offices of many large corporations are located in Montreal, Toronto, Winnipeg and Vancouver tends to raise the average salary of the provinces in which these cities are located.

For Canada as a whole, weekly earnings advanced 121 p.c. from 1946 to 1959 and hourly earnings 136 p.c. Hourly earnings of office employees increased each year, but at

an uneven rate; between 1946 and 1949 the increase was 28 p.c., between 1949 and 1954 it was 46 p.c. and between 1954 and 1959, 26 p.c. The significant difference in the rate of increase of office employees as compared with production workers occurred during the 1946-49 period, when hourly earnings of office employees increased 28 p.c. and those for production workers 46 p.c. Since 1949 the trend for both classes of employee was about the same.

All industrial groups reported higher annual earnings in 1959 than in 1946, the increases ranging from 166 p.c. for wood products to 80 p.c. for textiles. As with production workers, office employees in the durable goods industries received greater increases generally than office employees in the non-durable or consumer goods industries. Among the industrial groups, office employees in the products of petroleum and coal group received the highest average annual salary of \$6,188 in 1959; as already noted, this group was also the highest paying group with respect to annual earnings of production workers. Office employees of the paper products group received the second highest average salary and those of the transportation equipment group the third highest. The lowest annual earnings were received by the office employees of the wood products group. In 1959 there were two groups with annual earnings of more than \$6,000, six groups with earnings of \$5,000 to \$6,000, eight groups in the \$4,000-to-\$5,000 range and only one group below \$4,000.

1.—Average Annual, Weekly and Hourly Earnings of Production Workers, by Province and Industrial Group, 1946 and 1959

Province and Industrial Group	Annual Earnings			Weekly Earnings			Hourly Earnings		
	1959	1946	Per-centage Increase	1959	1946	Per-centage Increase	1959	1946	Per-centage Increase
	\$	\$		\$	\$		\$	\$	
Province									
Newfoundland.....	3,090	2,392 ¹	29	62.25	46.52 ²	34	1.61	0.99 ²	63
Prince Edward Island.....	2,005	911	120	45.53	21.51	112	1.13	0.46	145
Nova Scotia.....	2,953	1,398	111	61.74	31.44	96	1.49	0.69	116
New Brunswick.....	2,879	1,390	107	60.43	30.54	98	1.43	0.66	117
Quebec.....	3,203	1,445	122	64.99	30.51	113	1.54	0.67	130
Ontario.....	3,814	1,552	146	75.10	33.26	126	1.82	0.78	133
Manitoba.....	3,333	1,491	124	67.34	31.16	116	1.64	0.73	125
Saskatchewan.....	3,646	1,455	151	72.86	32.78	122	1.77	0.75	136
Alberta.....	3,647	1,477	147	74.50	32.40	130	1.83	0.75	144
British Columbia.....	3,918	1,750	124	82.54	36.83	124	2.11	0.89	137
Canada.....	3,551	1,516	134	71.35	32.38	120	1.72	0.74	132
Industrial Group									
Foods and beverages.....	3,185	1,389	129	63.24	29.15	117	1.53	0.66	131
Tobacco and tobacco products....	3,373	1,168	189	70.90	23.85	197	1.76	0.56	214
Rubber products.....	3,335	1,567	145	76.82	36.78	109	1.81	0.82	121
Leather products.....	2,385	1,192	100	47.57	25.03	90	1.20	0.59	103
Textile products (except clothing)...	2,776	1,271	118	56.38	24.13	134	1.30	0.55	136
Clothing (textile and fur).....	2,250	1,191	89	43.88	25.38	73	1.13	0.62	82
Wood products.....	2,991	1,337	124	65.01	30.94	110	1.52	0.69	120
Paper products.....	4,215	1,835	130	83.82	36.97	127	2.00	0.79	153
Printing, publishing and allied industries.....	4,077	1,609	153	82.13	34.57	138	2.07	0.82	152
Iron and steel products.....	4,228	1,731	144	85.15	36.87	131	2.04	0.82	149
Transportation equipment.....	4,328	1,897	128	82.22	39.85	106	2.03	0.94	116
Non-ferrous metal products.....	4,261	1,713	149	81.85	35.51	130	1.98	0.81	144
Electrical apparatus and supplies...	3,739	1,523	146	73.27	32.39	126	1.78	0.77	131
Non-metallic mineral products....	3,911	1,547	153	77.40	32.78	136	1.74	0.71	145
Products of petroleum and coal....	5,185	1,891	174	99.13	37.88	162	2.41	0.90	168
Chemicals and allied products....	3,968	1,564	154	77.49	32.46	139	1.89	0.73	159
Miscellaneous industries.....	2,969	1,291	130	59.54	26.94	121	1.40	0.63	122

¹ 1949 earnings.

² 1950 earnings.

2.—Average Annual, Weekly and Hourly Earnings of Administrative and Office Employees, by Province and Industrial Group, 1946 and 1959

Province and Industrial Group	Annual Earnings			Weekly Earnings			Hourly Earnings		
	1959	1946	Per-centage Increase	1959	1946	Per-centage Increase	1959	1946	Per-centage Increase
	\$	\$		\$	\$		\$	\$	
Province									
Newfoundland.....	3,453	1,921 ¹	80	86.68	54.95 ¹	58	2.09	1.29 ¹	62
Prince Edward Island.....	2,683	1,571	71	63.83	40.35	58	1.51	0.98	54
Nova Scotia.....	3,848	1,788	115	81.13	39.89	103	2.09	0.93	125
New Brunswick.....	3,900	1,879	107	78.23	40.33	94	1.93	0.93	108
Quebec.....	4,910	2,298	114	95.98	44.57	115	2.50	1.07	134
Ontario.....	5,217	2,356	121	99.04	43.82	126	2.57	1.08	138
Manitoba.....	4,402	2,090	111	84.26	41.46	103	2.19	0.97	126
Saskatchewan.....	4,026	1,654	143	82.13	38.78	112	2.11	0.90	134
Alberta.....	4,511	1,812	149	94.78	39.34	141	2.40	0.92	161
British Columbia.....	5,118	2,200	133	104.18	46.59	124	2.69	1.11	142
Canada.....	4,995	2,270	120	97.10	43.85	121	2.52	1.07	136
Industrial Group									
Foods and beverages.....	4,471	1,990	125	88.91	41.33	115	2.28	0.98	133
Tobacco and tobacco products....	5,595	2,371	136	102.71	39.94	157	2.69	0.97	177
Rubber products.....	4,951	2,289	116	93.33	44.97	106	2.42	1.11	118
Leather products.....	4,600	2,298	92	77.85	37.93	105	1.99	0.88	126
Textile products (except clothing)...	4,802	2,675	80	86.01	48.08	79	2.22	1.16	91
Clothing (textile and fur).....	4,763	2,580	85	77.56	38.00	104	1.99	0.92	116
Wood products.....	3,776	1,419	166	89.14	42.65	109	2.22	0.98	127
Paper products.....	6,044	2,831	113	112.95	52.29	116	3.02	1.28	136
Printing, publishing and allied industries.....	4,306	2,084	107	84.94	37.07	129	2.28	0.93	145
Iron and steel products.....	5,200	2,429	114	99.48	50.14	98	2.58	1.23	110
Transportation equipment.....	5,783	2,574	125	106.21	50.14	112	2.72	1.19	129
Non-ferrous metal products.....	5,503	2,590	112	105.61	47.22	124	2.76	1.14	142
Electrical apparatus and supplies...	5,373	2,267	137	100.46	45.46	121	2.58	1.15	124
Non-metallic mineral products.....	4,945	2,134	132	96.06	43.29	122	2.47	1.05	135
Products of petroleum and coal....	6,185	2,412	157	126.60	47.66	166	3.46	1.21	186
Chemicals and allied products.....	5,190	2,386	118	103.01	43.88	135	2.73	1.11	146
Miscellaneous industries.....	4,852	2,298	111	90.07	39.89	126	2.35	0.93	153

¹ 1950 earnings.

Changes in the Volume of Goods Produced.—For all types of manufacturing, there was an increase of 61.2 p.c. in the volume of production during the 1945-59 period; non-durable goods—which include foods and beverages; tobacco, rubber, leather, paper, petroleum and chemical products; textiles and clothing; printing and publishing, etc.—advanced by 70.2 p.c., and durable goods—which include products of wood, iron and steel, metal and non-metallic minerals, transportation equipment and electrical goods—advanced by 49.8 p.c. The following figures show that non-durable goods increased at an accelerated rate during the whole period but that durables recorded little change between 1945 and 1949 and advanced 25 p.c. between 1949 and 1954 but only 20 p.c. between 1954 and 1959.

Period	All Manufactures	Durable Goods	Non-durable Goods
	p.c.	p.c.	p.c.
1945-49.....	+ 7.6	+ 0.2	+13.4
1949-54.....	+22.9	+24.8	+21.2
1954-59.....	+21.9	+19.8	+23.8
1945-59.....	+61.2	+49.8	+70.2

As stated above, there was no interruption in the upward movement of production in the non-durable group of industries during the whole period. The population of the country increased by 44.5 p.c. in these years and the filling of the requirements of these

additional people accounted for part of the increase in the demand for such goods. Also contributing to the upward trend were increased exports and generally higher personal expenditure on consumer goods which resulted from the high level of economic activity and attendant increased personal income. The greatest advance in volume of output was achieved by the products of the petroleum and coal group of industries, which amounted to 226 p.c. This was followed by the printing and publishing industries with an increase of 113 p.c., paper products 109 p.c., chemicals and allied products 95 p.c., miscellaneous industries 86 p.c., tobacco and tobacco products 74 p.c., foods and beverages 61 p.c., rubber products 58 p.c., textiles 42 p.c., clothing 24 p.c., and leather goods 5 p.c. Although all these groups reported increases in volume of output, five of them employed fewer persons in 1959 than in 1945, the declines ranging from 15.4 p.c. in the tobacco industry to 9.1 p.c. in the leather goods industry.

While non-durable goods fluctuate more or less in proportion to the growth in population and levels of personal income, the durable goods industries are affected to a much greater extent by fluctuations in the business cycle. When the economy is expanding, durable goods industries expand far more than non-durable goods industries, and in periods of recession they experience a more severe downturn than do non-durables. Thus, the industries producing durable goods showed wider fluctuations in volume of output during the 1945-59 period than did the industries producing non-durable goods.

3.—Percentage Variation in Employment, Salaries and Wages, Gross Value of Products and Volume of Production, by Province and Industrial Group, 1945-59

Province and Group	1949 Compared with 1945 ¹				1954 Compared with 1949			
	Em- ployees	Salaries and Wages	Gross Value of Products	Volume of Pro- duction	Em- ployees	Salaries and Wages	Gross Value of Products	Volume of Pro- duction
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Province								
Newfoundland.....	...	...	...	...	+ 12.2	+ 71.1	+ 43.3	..
Prince Edward Island.....	- 2.2	+ 25.9	+ 69.2	..	+ 1.5	+ 40.6	+ 29.5	..
Nova Scotia.....	- 22.5	- 8.8	+ 21.1	..	+ 1.0	+ 31.2	+ 21.2	..
New Brunswick.....	+ 1.2	+ 36.7	+ 52.2	..	- 5.7	+ 24.6	+ 24.1	..
Quebec.....	- 8.0	+ 21.2	+ 29.3	..	+ 8.7	+ 50.0	+ 42.4	..
Ontario.....	- 1.3	+ 33.8	+ 40.6	..	+ 7.5	+ 49.7	+ 39.8	..
Manitoba.....	+ 2.5	+ 37.2	+ 34.7	..	- 1.7	+ 35.3	+ 20.4	..
Saskatchewan.....	- 12.3	+ 25.8	+ 23.0	..	+ 6.3	+ 50.4	+ 30.1	..
Alberta.....	+ 19.1	+ 65.9	+ 47.1	..	+ 24.0	+ 75.8	+ 54.6	..
British Columbia.....	- 13.7	+ 9.9	+ 46.2	..	+ 15.6	+ 62.8	+ 53.7	..
Canada.....	+ 3.6	+ 39.2	+ 50.0	+ 7.6	+ 8.1	+ 50.3	+ 40.6	+ 22.9
Industrial Group								
Foods and beverages ²	+ 8.1	+ 48.5	+ 49.5	+ 9.1	+ 3.4	+ 42.4	+ 23.1	+ 20.6
Tobacco and tobacco products.....	- 12.2	+ 39.1	+ 42.3	- 3.1	- 11.4	+ 27.3	+ 30.7	+ 24.7
Rubber products.....	- 11.8	+ 23.2	+ 1.6	- 2.1	+ 0.8	+ 40.1	+ 48.0	+ 19.2
Leather products.....	+ 2.3	+ 38.0	+ 25.6	- 12.7	- 11.9	+ 12.5	- 2.0	+ 0.2
Textile products (except clothing).....	+ 18.9	+ 78.6	+ 65.1	+ 14.3	- 17.0	+ 9.0	+ 0.6	- 5.7
Clothing (textile and fur).....	+ 17.8	+ 57.1	+ 52.6	+ 9.4	- 5.5	+ 15.8	+ 10.2	+ 8.9
Wood products ²	+ 28.9	+ 86.7	+ 83.9	+ 29.5	+ 6.0	+ 43.7	+ 43.5	+ 24.2
Paper products ²	+ 20.7	+ 80.5	+ 95.1	+ 44.7	+ 14.3	+ 59.1	+ 49.1	+ 24.1
Printing, publishing and allied industries.....	+ 31.2	+ 81.2	+ 84.1	+ 48.6	+ 11.0	+ 55.7	+ 52.8	+ 21.6
Iron and steel products ²	- 3.4	+ 31.6	+ 49.0	+ 3.8	+ 6.2	+ 46.5	+ 37.7	+ 6.2
Transportation equipment ²	- 32.4	- 17.1	+ 2.8	- 36.3	+ 27.4	+ 76.9	+ 61.2	+ 37.3
Non-ferrous metal products.....	+ 1.1	+ 29.9	+ 58.0	+ 1.2	+ 13.0	+ 59.0	+ 45.8	+ 17.0
Electrical apparatus and supplies.....	+ 26.7	+ 79.5	+ 110.9	+ 41.4	+ 34.3	+ 88.3	+ 77.7	+ 51.7
Non-metallic mineral products.....	+ 38.8	+ 96.0	+ 88.6	+ 57.0	+ 25.2	+ 77.8	+ 76.6	+ 46.1
Products of petroleum and coal.....	+ 26.2	+ 73.7	+ 97.6	+ 39.1	+ 20.7	+ 75.2	+ 91.3	+ 65.0
Chemicals and allied products ²	- 32.6	- 6.0	+ 17.5	- 6.6	+ 31.9	+ 76.1	+ 59.3	+ 52.1
Miscellaneous industries.....	+ 9.9	+ 37.5	+ 8.2	+ 1.7	+ 17.7	+ 67.7	+ 61.4	+ 34.3

¹For footnotes, see end of table.

3.—Percentage Variation in Employment, Salaries and Wages, Gross Value of Products and Volume of Production, by Province and Industrial Group, 1945-59—concluded

Province and Group	1959 Compared with 1954				1959 Compared with 1945			
	Em- ployees	Salaries and Wages	Gross Value of Products	Volume of Pro- duction	Em- ployees	Salaries and Wages	Gross Value of Products	Volume of Pro- duction
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Province								
Newfoundland.....	- 2.7	+ 10.4	+ 8.6	..	..	..	..	..
Prince Edward Island.....	- 0.3	+ 28.5	+ 17.9	..	- 15.7	+ 129.7	+ 138.7	..
Nova Scotia.....	- 4.9	+ 22.2	+ 32.9	..	- 7.0	+ 69.6	+ 99.5	..
New Brunswick.....	- 5.3	+ 15.9	+ 13.3	..	- 12.3	+ 97.1	+ 107.8	..
Quebec.....	+ 1.7	+ 27.4	+ 28.2	..	+ 12.3	+ 154.7	+ 173.2	..
Ontario.....	+ 2.8	+ 31.2	+ 36.7	..	+ 18.9	+ 190.6	+ 194.3	..
Manitoba.....	+ 4.7	+ 32.2	+ 30.1	..	+ 12.5	+ 157.5	+ 118.8	..
Saskatchewan.....	+ 8.8	+ 40.4	+ 23.7	..	+ 7.9	+ 178.2	+ 107.1	..
Alberta.....	+ 20.6	+ 57.4	+ 54.2	..	+ 83.9	+ 365.5	+ 257.4	..
British Columbia.....	+ 5.5	+ 31.8	+ 27.2	..	+ 15.0	+ 162.7	+ 198.2	..
Canada.....	+ 2.8	+ 30.3	+ 32.8	+ 21.9	+ 15.6	+ 173.2	+ 181.8	+ 61.2
Industrial Group								
Foods and beverages ²	+ 8.0	+ 38.9	+ 31.2	+ 22.4	+ 20.6	+ 191.3	+ 141.4	+ 61.0
Tobacco and tobacco products.....	+ 8.6	+ 36.6	+ 44.0	+ 44.3	- 15.4	+ 142.0	+ 164.9	+ 74.3
Rubber products.....	+ 1.0	+ 28.7	+ 31.6	+ 35.2	- 10.2	+ 122.1	+ 81.7	+ 57.8
Leather products.....	+ 0.9	+ 23.2	+ 31.3	+ 20.1	- 9.1	+ 91.2	+ 61.5	+ 5.1
Textile products (except clothing).....	- 1.6	+ 19.2	+ 25.2	+ 31.9	+ 12.7	+ 129.6	+ 105.2	+ 42.2
Clothing (textile and fur).....	- 2.4	+ 17.0	+ 19.2	+ 3.9	+ 8.7	+ 112.7	+ 100.3	+ 23.7
Wood products ²	- 4.0	+ 20.0	+ 18.2	+ 10.0	+ 31.4	+ 223.7	+ 212.2	+ 76.9
Paper products ²	+ 7.9	+ 30.8	+ 24.4	+ 16.6	+ 49.9	+ 278.0	+ 266.0	+ 109.4
Printing, publishing and allied industries.....	+ 7.7	+ 39.9	+ 42.7	+ 17.8	+ 68.7	+ 313.3	+ 338.9	+ 112.8
Iron and steel products ²	+ 11.1	+ 42.3	+ 57.5	+ 38.6	+ 13.8	+ 174.1	+ 222.8	+ 52.9
Transportation equipment ²	- 14.9	+ 11.0	+ 18.0	- 4.2	- 26.8	+ 62.3	+ 95.4	+ 16.2
Non-ferrous metal products.....	+ 3.0	+ 29.9	+ 37.7	+ 15.1	+ 17.6	+ 189.1	+ 217.0	+ 36.3
Electrical apparatus and supplies.....	- 1.6	+ 22.6	+ 21.2	+ 21.8	+ 67.4	+ 314.4	+ 354.4	+ 161.4
Non-metallic mineral products.....	+ 23.0	+ 55.6	+ 59.5	+ 52.8	+ 112.3	+ 438.6	+ 427.9	+ 250.4
Products of petroleum and coal.....	- 4.5	+ 34.7	+ 24.2	+ 46.4	+ 45.5	+ 310.0	+ 360.3	+ 225.9
Chemicals and allied products ²	+ 6.2	+ 37.2	+ 47.3	+ 37.0	- 10.8	+ 127.0	+ 176.0	+ 94.6
Miscellaneous industries.....	+ 21.9	+ 53.2	+ 71.4	+ 36.4	+ 57.7	+ 253.3	+ 199.2	+ 86.4

¹Exclusive of Newfoundland and "Publishing (only) of Periodicals".

²Not included in the totals for the

1945-49 and 1945-50 periods because figures for Newfoundland were included with Canadian manufacturing production only since 1949.

For the period as a whole, the greatest expansion in volume of durable goods output was recorded by the non-metallic mineral products group, which increased 250 p.c. This was followed by electrical apparatus and supplies with an increase of 161 p.c., wood products 77 p.c., iron and steel products 53 p.c., and non-ferrous metal products 36 p.c. The transportation equipment group was the only one to report a decrease, and the 16-p.c. decline in the production of this group was accompanied by a 27-p.c. decline in number of employees. All other groups of the durable goods classification reported increased employment.

The output of transportation equipment was particularly high during the war years because of the great increase in production of ships and aircraft. The index for this group of industries reached a record level of 236 in 1944, the year of maximum war production. After the end of the War, however, the index dropped to a low of 81 in 1946. During the next few years output increased steadily and a postwar high of 165 was reached in 1953. The minor recession in industrial production in 1954 affected this group more than any other and the index dropped to 137 in that year. Although some recovery occurred during the following few years, the decline in industrial production during 1958 and 1959 brought the index to a level of only 132 in 1959.

The iron and steel group of industries was also considerably affected by war requirements. As most of the industries in this group were more firmly established in the prewar

period, they did not expand relatively to the same extent as the shipbuilding and aircraft industries. When European supplies were cut off early in the War, the Canadian basic steel industry had to rely on the United States for a greater supply and had to increase its own steel-making capacity to meet the abnormal wartime requirements. However, development of the iron and steel group of industries did not halt with the end of hostilities. Canada's industrialization program, together with the strong postwar demand for consumer durable goods, led to a steady expansion of this group of industries so that by 1959 the index had advanced to 147, the highest on record, and exceeded the wartime high by 15 points. The output of pig iron in 1939 was only 755,731 tons and the output of steel ingots and castings 1,551,051 tons; in 1959 production of these commodities reached record levels of 4,182,755 tons and 5,901,487 tons, respectively.

The Manufacturing Situation in 1960

The recovery that took place during 1959 in manufacturing production, following the moderate recession of 1957-58, was maintained, more or less, in 1960. In that year, the value of factory shipments amounted to \$23,747,457,083 and value added by manufacture to \$10,517,332,701, both the highest on record. Salaries and wages at \$5,207,167,393 were 2.3 p.c. higher than in the previous year, but number of employees and physical volume of production were fractionally lower, recording declines of 1.1 and 0.3 p.c., respectively. The trend in recent years for the same volume of output to be produced with fewer employees was also apparent in 1960; the physical volume of manufactures produced increased by 49 p.c. in the 1949-60 period and the number of persons employed by only 10.5 p.c. The higher salaries and wages paid in 1960 resulted from the continuing advance in earnings, a trend common to all other sectors of the economy. It should be noted also that the addition of about 372,000 persons to the population in 1960 supplemented labour income and had a stimulating influence on the output of the consumer goods industries.

Of tremendous importance in sustaining the high level of production in 1960 was the continued high spending on capital goods, such as construction and machinery and equipment of all kinds. Investment in capital goods amounted to \$3,262,000,000 although this was \$155,000,000 less than in 1959; on machinery and equipment expenditures were \$101,000,000 higher than in 1959 but construction expenditures were \$256,000,000 lower. However, the big drop in the spending on construction projects had only a moderate effect on the industries producing building materials. An increase in the export of timber, lumber and shingles counterbalanced the decline in domestic demand, resulting in a net decrease of only 0.4 p.c. in the volume of wood products manufactured; the output of cement, however, dropped 7.9 p.c.

Export demand for Canadian manufactured products was also a strong factor in stimulating the high level of production in 1960. Exports of partly manufactured products at \$1,610,637,000 were \$186,736,600 higher than in 1959 and exports of fully manufactured goods at \$1,960,655,000 were \$109,021,000 higher. On the whole, exports of partly and fully manufactured products increased 9.0 p.c. Substantial improvements were shown in the amounts of lumber and timber, shingles, wood pulp, newsprint, aluminum and its products, nickel, copper and its products, zinc, automobiles and parts, crude artificial abrasives, fertilizers, lead and lead products and non-farm machinery going abroad but, at the same time, declines occurred in such major export items as veneer and plywood, whisky, wheat flour, farm implements and machinery, aircraft, synthetic resins and their products and uranium ores and concentrates.

As already mentioned, the physical volume of production for manufacturing as a whole reached an all-time high of 149.8 in 1959 but declined somewhat to 149.3 in 1960, a drop of 0.3 p.c. Between 1959 and 1960 the volume of non-durable or consumer goods produced increased 1.1 p.c. but the volume of durable goods manufactured declined by 2.1 p.c. Since the end of the Second World War the production of durable goods industries experienced an almost uninterrupted expansion but recorded an increase in volume of only

54 p.c. from 1946 to 1956 while durable goods increased 92 p.c. in the same period. The gap between the two was narrowed in the years from 1957 to 1960 so that for the whole period 1946-60 durable goods expanded 83 p.c. and non-durable goods 69 p.c.

The trend of production among the non-durable goods industries in 1960 was mixed. Eight groups reported increases ranging from 5.4 p.c. for chemicals and allied products to 1.2 p.c. for tobacco and tobacco products and four groups reported declines. Rubber goods, with a loss of 11.0 p.c., experienced the greatest drop in production followed by leather goods with a loss of 7.1 p.c., clothing 4.6 p.c. and textiles 1.5 p.c. In the durable goods sector only the non-ferrous metal products group reported a greater volume of production in 1960, the increase over 1959 being 10.1 p.c. A decline of 6.7 p.c. was reported by iron and steel products followed by a loss of 5.5 p.c. by the non-metallic mineral products group, one of 2.5 p.c. by electrical apparatus and supplies, 1.1 p.c. by transportation equipment and 0.4 p.c. by wood products.

The level of manufacturing production in 1960, as measured by the number of persons employed, varied from province to province. Compared with the previous year, the greatest increase in employment of 6.1 p.c. was reported by New Brunswick. Prince Edward Island with an increase of 1.6 p.c. was second in this respect, followed by Nova Scotia and Saskatchewan each with an increase of 0.7 p.c. and Quebec with an increase of 0.6 p.c. Manitoba suffered the greatest loss in employment of 2.9 p.c., followed by Ontario with a loss of 2.4 p.c., Newfoundland 1.5 p.c., British Columbia 1.2 p.c. and Alberta 1.1 p.c. Perhaps the most outstanding feature in 1960 was the continued expansion of manufacturing employment in Saskatchewan which increased 0.7 p.c., after a rise of 2.1 p.c. in 1959 and of 2.3 p.c. in 1958, a year when all other provinces reported declines. Another feature was the gain of 2.2 p.c. in employment in the Atlantic Provinces, when other economic regions, with the exception of Quebec, suffered declines.

Of major importance to modern industry is the production of petrochemicals, a sector of the chemical industry that has developed rapidly in Canada during the past decade. This industry is dealt with in detail in the following specially prepared article.

THE PETROCHEMICAL INDUSTRY IN CANADA*

The term "petrochemicals" identifies, in a general way, not only the raw materials from which these chemicals are derived but also the closely related processes by which they are made. Petrochemicals may be defined broadly as chemicals derived from crude petroleum or natural gas and the development of this sector of the chemical industry has automatically brought it into closer working relationship with the oil and gas industry. Using plants and equipment that frequently resemble oil refineries, and employing techniques that have been only recently discovered, firms in this relatively new field can be separated from the remainder of the chemical industry for purposes of describing their growing importance in the Canadian economy.

For many years production of organic chemicals was hampered by a shortage of raw materials since the output of coal tar products was unable to keep abreast of the needs of chemical producers. This naturally led to the interest in petroleum and natural gas as source materials. In North America today there are some 3,000 petrochemicals in everyday use. Their number is increasing rapidly, with 300 or more being introduced every

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year. In Canada, production of these chemicals is modest by comparison, yet the number of plants that have been built for this purpose since 1950 have succeeded in expanding total output many times over.

Petrochemical production has a double significance. In the first place, petrochemicals compete effectively with other raw materials. Thus, vegetable products, animal fats and coal tar are no longer exclusive sources of such organic chemicals as oils, detergents and synthetic fibres, and sulphur and ammonia no longer need be produced from coal or other minerals. Secondly, petrochemicals have made possible entirely new products. Thus the manufacture of synthetic rubber and many of the plastics has been a direct result of chemical research and engineering in respect to oil and natural gas.

It is extremely difficult to obtain figures demonstrating the value of petrochemical production since there is no clearly defined group of plants that can be said to make up the petrochemical industry. For example, there may be mining companies and oil refineries which produce petrochemicals but do not report them separately to the Dominion Bureau of Statistics, and to include the total production of these plants as petrochemicals would greatly inflate values while to omit them entirely would also be misleading. For purposes of comparing growth rates, however, Table 1 shows the rapid increase in the ten years since 1951 in the number of plants and value of production of a group of firms engaged in petrochemical operations and which provide a set of statistics that include primarily petrochemical production.

1. Principal Statistics of Selected Firms Comprising the Petrochemical Industry, 1947-61

NOTE.—No attempt has been made to restrict this summary to the petrochemical operations of the plants in this group; accordingly, products not petrochemical in nature made at these plants are included.

Year	Plants	Employees	Salaries and Wages	Cost of Fuel and Electricity at Works	Cost of Materials at Works	Gross Selling Value of Products at Works
	No.	No.	\$'000	\$'000	\$'000	\$'000
1947.....	3	2,366	5,391	2,485	9,379	24,286
1948.....	3	2,386	5,857	3,036	12,097	30,340
1949.....	3	2,635	6,904	5,279	15,326	38,462
1950.....	3	2,731	7,774	6,334	18,595	50,466
1951.....	3	3,069	10,300	6,867	21,925	64,871
1952.....	5	3,344	12,156	7,482	24,395	67,187
1953.....	13	4,124	15,908	8,504	30,103	78,050
1954.....	13	4,642	19,520	9,955	41,817	99,450
1955.....	13	4,751	20,425	10,194	48,790	127,104
1956.....	14	5,100	23,207	11,514	62,914	143,650
1957.....	18	5,800	28,855	13,507	72,017	161,000
1958.....	18	6,300	32,764	19,242	80,809	190,000
1959.....	19	5,974	32,018	18,133	91,255	202,854
1960.....	18	6,500	36,958	22,584	95,153	229,113
1961.....	21	6,620	39,276	21,468	97,767	252,389

History.—Canada's petrochemical history was spawned during World War II with the first two plants being government-controlled operations to produce vital military requirements. Petrochemical production actually began in 1941 with a \$6,000,000 investment to produce ammonia from natural gas at Calgary, Alta. This ammonia was required to produce ammonium nitrate for military explosives. After the War the plant was purchased by The Consolidated Mining and Smelting Company of Canada Limited and was converted to the manufacture of ammonium nitrate fertilizer. This first plant was followed by the synthetic rubber plant of Polymer Corporation Limited at Sarnia, Ont., which began operations in 1943. The first commercial petrochemical plant, however, was for the production of the plastic material, polystyrene, by Dow Chemical of Canada Limited at Sarnia in 1947.

While these three plants increased in size and diversity of production, it was not until the early 1950's that petrochemical growth accelerated rapidly in both Eastern and Western Canada, not only with respect to variety of product but also from the standpoint of types of feedstocks, new processes and methods of operation. In 1952, Shell Oil Company of Canada Limited pioneered the extraction of sulphur from natural gas in Canada and this was the forerunner of what grew, within a decade, to be the largest volume petrochemical in Canada. Canadian Chemical Company Limited completed a large plant at Edmonton, Alta., in 1953 to produce cellulose acetate for textiles, acetic acid and a variety of other chemicals. Cellulose is obtained from an affiliated pulp mill and propane and butane feedstocks are obtained from oil refineries and gas processing plants near Edmonton. The latter raw materials are partially oxidized to produce acetic acid and a wide range of oxygenated by-products such as alcohols, aldehydes and ketones. At the same time, Canadian Industries Limited constructed a petrochemical plant at Edmonton using ethylene derived from natural gas to produce polyethylene and, in Eastern Canada, Shawinigan Chemicals Limited, Shell Oil Company of Canada Limited and Union Carbide Canada Limited were completing plants at Montreal to produce a variety of petrochemicals from refinery streams. To add to the growth in petrochemical plants in 1953, Dupont of Canada Limited began producing nylon intermediates near Brockville, Ont., and Cabot Carbon Canada Limited commenced operations at Sarnia to produce carbon black for use primarily in the tire industry. In the next three to four years additional sulphur and ammonia plants were constructed in Alberta, Canadian Industries Limited completed a plant near Kingston, Ont., to produce polyester-type synthetic fibres from petrochemicals, and Ethyl Corporation of Canada Limited began production of tetraethyl lead as a gasoline anti-knock. Imperial Oil Limited became a petrochemical producer at Sarnia in 1957 to provide detergent alkylate, a basic ingredient of synthetic detergents, along with other basic raw materials. That same year, Canadian Oil Companies Limited produced the first petroleum-derived benzene.

While continued expansion occurred in many areas of petrochemical production in the intervening years, the major advances occurred in the natural gas processing industries and particularly in the development of sulphur-producing capacity. By 1962 there were seventeen plants in Western Canada extracting sulphur from natural gas and four additional ammonia plants using gas as a raw material, and a total of well over fifty plants, in all, producing chemicals derived from petroleum or natural gas.

The Industry Today.—The Canadian petrochemical industry is centred chiefly at Sarnia and Montreal, which are major petroleum refining centres, and in Alberta close to the low-cost natural gas fields. In Canada, as in other parts of the world, there has been a trend to larger, more economic plants and the establishment of chemical complexes. This was to be expected, because in the chemical business each company frequently becomes both a supplier and a customer of another chemical producer. Furthermore, important freight savings can be realized through pipeline deliveries between the plants. Such a centre usually attracts all types of skills and has services and facilities not available to a single plant or smaller installations.

In determining plant location, whether Eastern or Western Canada, various factors must be evaluated: (1) cost of raw material and fuel; (2) cost of transporting products; (3) economics of plant size; and (4) cost of construction. In general, Western Canada has an advantage in cost of raw materials but the cost of transporting products to market in Eastern Canada can offset this advantage. Large-scale operation usually results in lower unit costs and a plant located to serve only a small sector of the Canadian market and scaled to this size may therefore not normally be desirable. Costs of construction are slightly higher in Western Canada because of climatic conditions. These considerations have led to a greater concentration of petrochemical construction in Ontario and Quebec but there are still opportunities for new developments in Western Canada through upgrading of primary petrochemicals to higher valued intermediates and chemical end products on which transportation costs are not as significant a factor.

Petrochemicals now account for roughly one-third of the volume of chemicals produced in Canada and about two-thirds of the value. It is expected that the physical share will rise to 50 p.c. by 1965, with a dollar value of almost three-quarters of the production of the entire chemical industry. Capital investment in Canada's petrochemical industry is now roughly \$500,000,000, a remarkable increase from the \$6,000,000 invested in the first plant twenty years ago. Sulphur ranks as the number one petrochemical in volume of production, with capacity reaching approximately 2,000,000 tons in 1962. This ranks Canada as the world's second largest producer of this material, although more by circumstance than by design since Western Canada's sour natural gas must be cleaned of its sulphur content prior to sale. Sulphur is used almost entirely for the production of sulphuric acid, which probably enters a greater variety of industrial processes than any other single chemical, but goes primarily into the manufacture of fertilizers and pulp and paper. Ammonia is in second place in volume and the capacity of over 500,000 tons is used mainly in the manufacture of fertilizers. Both sulphur and ammonia are inorganic chemicals and are therefore in a class by themselves compared to other petrochemicals.

Approximately 100 different organic chemicals are produced in more than 25 petrochemical plants in Canada, with a combined capacity of over 1,000,000 tons. Primary petrochemicals are those obtained relatively simply from natural gas streams or oil refineries while secondary petrochemicals are those produced from the primary type. Benzene and ethylene are the two largest volume primary petrochemicals, with a capacity for each of approximately 200,000 tons per year. Both these chemicals are used in the production of a host of secondary petrochemicals such as synthetic rubber, polyethylene and polystyrene plastics, detergent alkylate and ethylene glycol. Carbon black capacity of about 60,000 tons enjoys third position among the primary petrochemicals. Among the secondary petrochemicals, synthetic rubber capacity leads the field at approximately 180,000 tons, and polyethylene capacity is next at nearly 80,000 tons.

One of the most versatile starting materials in the thriving petrochemical industry is ethylene. If ammonia and sulphur are excluded as special cases in Canada, it is expected that by 1965 over one-third of the Canadian-produced organic petrochemicals will utilize ethylene somewhere in their syntheses. Ethylene capacity in Canada now exceeds demand and it is expected to remain in plentiful supply for the foreseeable future. While polyethylene now leads the way as the most important outlet for ethylene, for years the largest market for this primary petrochemical was in the manufacture of ethylene glycol which, in turn, is used in the manufacture of anti-freeze, synthetic fibres, explosives, resins and other miscellaneous chemicals. Tetraethyl lead, polystyrene, synthetic rubber and vinyl chloride are further examples of chemicals produced in large volume and derived at least in part from ethylene.

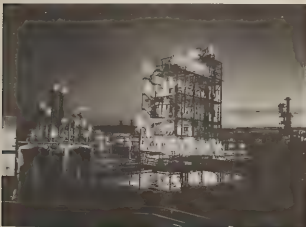
Recent announcements of various new petrochemical ventures by Canadian oil and chemical establishments have provided fresh proof of the rising importance of the country's wealth of petroleum and natural gas as a source of raw materials for the domestic chemical industry. An especially notable example of its beneficial effects on the national economy was the recent upsurge of projects for the large-scale production of benzene and other aromatic chemicals from petroleum. These materials, which are in fast-growing demand for a host of processes in the manufacture of synthetic chemicals, could hitherto be produced domestically in substantial quantities only as by-products of coke oven operations. However, as supplies from these sources have long been lagging behind requirements by an ever-widening margin, they have had to be supplemented by correspondingly increased imports. Now, four oil companies have embarked on making benzene from petroleum, making Canada not only self-sufficient in the product but also providing a sizable surplus for export. The chart on p. 614 illustrates the basic petrochemical relationships for certain chemicals and the raw material sources from which they originate.

The supply of raw materials by oil refiners to chemical companies is a logical and natural situation. Usually the refiners can provide the chemical companies with a reliable source of basic materials at a definite saving. The chemical company can, in turn, use its

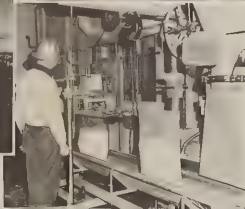


↑ "Chemical Valley" at Sarnia, Ont., contains the greatest agglomeration of petrochemical-producing plants in Canada.

→ One of the largest units in the natural gas processing section of the petrochemical industry is the recently completed multi-company operation at Rimbey, Alta., which produces propane, butane, condensate and sulphur as well as large quantities of sales gas for distribution to markets in Canada and the United States.



↑ An oxide reaction unit — part of Montreal East's vast chemical complex — where ethylene is converted into ethylene oxide.

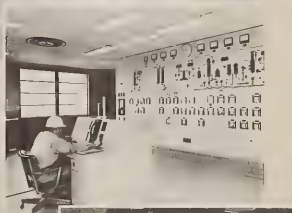


← Packaging polyethylene resins and compounds in polyethylene shipping bags.

→ A mountain of rock sulphur extracted from natural gas, stockpiled for eventual shipment to industries across Canada and throughout the world.



↑ Butyl rubber receives its final drying and mixing on rubber mills.



→ Process conditions in all petrochemical plants are regulated in centralized control rooms.



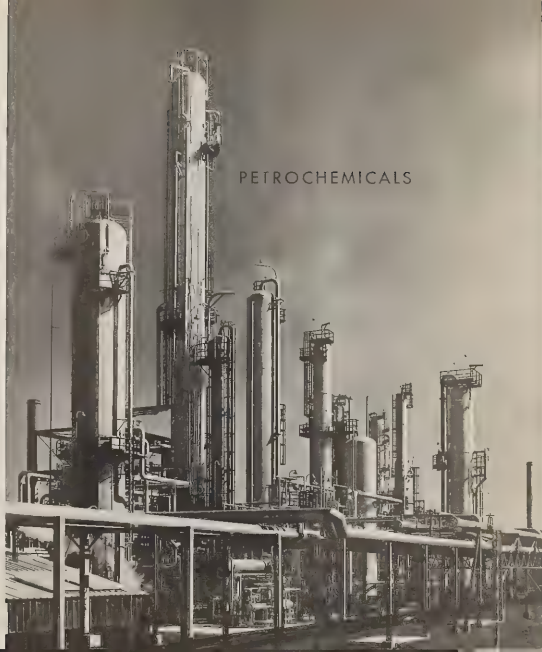
↑ Bobbles of synthetic fibre filament yarn are carefully inspected before they leave the plant for use by Canadian textile mills.

→
One of the several benzene plants now operating in Canada. Until recently, Canada imported all its benzene requirements but has become a large exporter of this important petrochemical product within the past year.

PETROCHEMICALS

Photographs courtesy of—

The British American Oil Company Ltd
Canadian Industries Limited
Polymer Corporation Ltd.
Union Carbide Canada Limited
National Film Board



investment capital to build facilities to further process these petrochemicals into intermediates and end products such as plastics, elastomers, agricultural chemicals, surface coatings, textiles, oil additives, drugs, etc.

The desire by refiners to upgrade products and to expand their business in a closely associated field leads them to diversify into petrochemicals. A number of these are produced concurrently with fuel products and only need to be removed from the refinery streams and purified to the desired specifications. Most of the processes involved are closely related to those used in petroleum refining operations and generally, the necessary technical skills are available or can be obtained easily. Location, size of refinery, types of crude oils and other hydrocarbons processed by the refiner are all factors that have an important bearing on a refiner's decision to manufacture petrochemicals.

The force that encourages refiners to consider diversification into petrochemicals is growing in Canada just as it is in other parts of the world, but it should be recognized that because of the small domestic market that prevails in Canada the opportunities are sometimes less numerous.

Foreign Trade in Petrochemicals.—No accurate figures are available on the overall imports or exports of most petrochemicals but these materials enter into a significant portion of Canada's foreign trade. On exports, particularly, it seems likely that the products included in over 90 p.c. of the value of Canadian chemical shipments have utilized one or more petrochemicals in the manufacturing process.

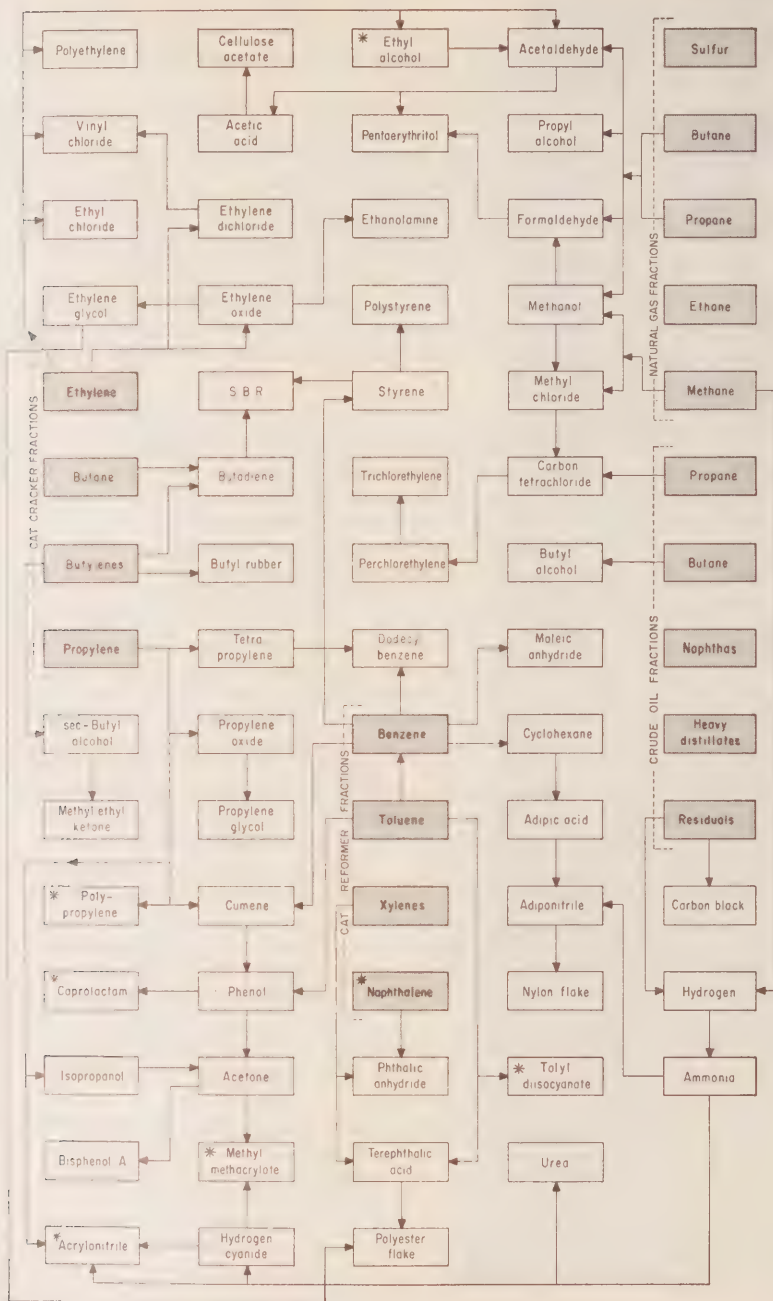
Canada's petrochemical industry has not developed, even on a per capita basis, as quickly as that of the United States. This can be traced mainly to the fact that large markets are needed to enable the economies of large-volume operations. The smaller Canadian market frequently will not support the cost of operating a small plant to compete openly with the lower costs of larger U.S. plants. Imports of petrochemicals have therefore been a significant part of the total sales of these chemicals and it is likely that Canada's petrochemical output will continue at a fraction of the comparable U.S. production.

The Canadian industry's position should, however, become more favourable with time as more and more plants are built here to make products that previously have been imported. To do this, it will be necessary to control costs. Despite an abundance of material resources, the relatively small population of the country and the vast area it covers mean small plants or higher transportation costs, or both. Accordingly, it is usually necessary to obtain export business to secure enough volume to build an economic plant.

Introduction of new products and the expanding population have caused a continuing shortage of many chemicals in most countries of the world. This strong demand has enabled Canadian producers to sell in export markets even in competition with countries having lower costs and export demand has been an important factor in sustaining Canada's petrochemical industry. There is every reason to believe that Canadian plants will continue to depend, directly or indirectly, on export markets for many years to come. While competition is growing abroad for the older established petrochemicals, it is likely that export opportunities will continue to be available as various markets experience imbalances of supply and demand and Canadian firms are alert to capitalize on opportunities.

Outlook in the Field of Petrochemicals.—One of the most important fields for future growth in petrochemicals will be that of plastics and synthetic resins. By 1965 these materials will likely become the most important single outlet in Canada for petrochemicals, with production probably reaching a 500,000,000-lb. level. Plans have been announced for the production of polypropylene, a relatively new plastic material, and diisocyanates which will displace imports as a raw material for the existing Canadian manufacture of the polyurethane plastics. Other petrochemicals that appear to be in a favourable position to grow include synthetic rubber (with new facilities under construction), synthetic textiles, oil additives and agricultural products.

INTERRELATIONSHIP OF VARIOUS PETROCHEMICAL PRODUCTS



* NOT YET MADE IN CANADA

The industry is currently digesting an impressive round of new plant expansion but there is a feeling prevalent that the future holds more difficult times. It would be a mistake to leave the impression that the petrochemical industry has no problems and profit is assured for anyone who engages in it. Despite the fact of rapid growth, profits in the industry, on the average, have been low. With the greater complexity and, hence, higher costs of the processes required for producing these upgraded materials, it obviously has become all the more imperative for manufacturers to aim at large-volume production to achieve economics of scale. In some fields the demands of the Canadian market are not yet large enough to justify plants of economic size or to ensure optimum use of available capacity. Faced with continually sharpening competition in home and export markets from highly efficient producers not only in the United States but also in more and more countries in Europe and elsewhere, most petrochemical firms in Canada must be content with modest profit margins in order to lower their prices to competitive levels.

In the future, the refiner may move forward toward chemicals and the chemical manufacturer backward to improve his competitive raw material position. It is likely, though, that in general the refining industry will remain 'raw material' oriented and the chemical industry will remain 'product' oriented. One solution to the lack of sufficient market to justify large, economic-sized plants may lie in research efforts devoted to reversing the current trend to bigger facilities and which might result in the design of plants that can operate profitably at throughputs tailored to the Canadian market. Greater flexibility of product from a given plant offers another possibility by enabling the same facilities to be shared for the production of different chemicals, thus reducing the unit overhead costs.

The future holds great promise for the Canadian petrochemical industry but in order to maintain the past rate of growth, producers will be faced with the need to develop superior techniques and the industry will require an increasing technical capacity to achieve advantages in the manufacture of selected products.

PART II.—STATISTICS OF MANUFACTURING

Section 1.—Growth of Manufacturing

It is impossible to give absolutely comparable statistics of manufacturing over a long period of years. From 1870 to 1915 statistics were collected only in connection with decennial or quinquennial censuses and there was inevitably some variation in the information collected. The annual Census of Manufactures was instituted in 1917 and, though numerous changes have since been made in the information collected and in the treatment of the data, an effort has been made to carry all major revisions back to 1917, so that the figures for the period since then are on a reasonably comparable basis.

The Bureau of Statistics in 1952 changed its policy with regard to the collection of statistics on the production of manufactured goods. Firms in several industries where year-end inventory changes were known to be insignificant were requested to report value of shipments f.o.b. plant instead of gross value of products. Under the "value of products" concept, establishments were asked to report the factory selling value of the products made whether sold or not, the unsold portion being assigned the average selling value of similar articles sold during the year. Under the "selling value of shipments" concept, establishments are required to report their sales during the year regardless of when the products were made, an item usually readily available from the firms' records. The changeover was made in order to ease the burden of reporting for the majority of manufacturing establishments. The value of shipments concept for small and medium sized establishments is more realistic and more readily obtainable from their accounting records, whereas the value of products made, for firms not recording such information, must be derived from special calculations.

1.—Summary Statistics of Manufactures, 1917-60

NOTE.—Statistics of manufacturing from 1870 have been published but between that year and 1917 figures are not on a basis comparable to the series given below. Statistics for significant years appear in the 1943-44 Year Book, p. 363. Figures of the non-ferrous metal smelting industries were first included with manufactures in 1925.

Year	Establish- ments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture ¹	Gross Value of Products ²
	No.	No.	\$	\$	\$	\$
1917	21,845	606,523	497,801,844	1,539,678,811	1,281,131,980	2,820,810,761
1918	21,777	602,179	567,991,171	1,827,631,548	1,399,794,849	3,227,426,387
1919	22,083	594,066	601,715,668	1,779,056,765	1,442,400,638	3,221,457,403
1920	22,532	598,893	717,493,876	2,085,271,649	1,621,273,348	3,706,544,997
1921	20,848	438,555	497,399,761	1,368,292,885	1,123,694,263	2,488,987,148
1922	21,016	456,256	489,397,230	1,272,651,585	1,103,266,106	2,375,917,691
1923	21,080	506,203	549,529,631	1,456,595,367	1,206,332,107	2,662,927,474
1924	20,709	487,610	534,467,675	1,422,573,946	1,075,458,459	2,570,561,931
1925 ³	20,981	522,924	569,944,442	1,571,788,252	1,167,936,726	2,816,864,958
1926 ³	21,301	559,161	625,682,242	1,712,519,991	1,305,168,549	3,100,604,637
1927 ³	21,501	595,052	662,705,332	1,741,128,711	1,427,649,292	3,257,214,876
1928 ³	21,973	631,429	721,471,634	1,894,027,188	1,597,887,676	3,582,345,302
1929 ³	22,216	666,531	777,291,217	2,029,670,813	1,755,386,937	3,883,446,116
1930 ³	22,618	614,696	697,555,378	1,664,787,763	1,522,737,125	3,280,286,603
1931	23,083	528,640	587,566,990	1,221,911,982	1,252,017,248	2,555,126,448
1932	23,102	468,833	473,601,716	954,381,097	955,960,724	1,980,417,543
1933	23,780	468,658	436,247,824	967,788,928	919,671,181	1,954,075,785
1934	24,209	519,812	503,851,055	1,229,513,621	1,087,301,742	2,393,692,729
1935	24,034	556,664	559,467,777	1,419,146,217	1,153,485,104	2,653,911,209
1936	24,202	594,359	612,071,434	1,624,213,996	1,289,592,672	3,002,403,814
1937	24,834	660,451	721,727,037	2,006,926,787	1,508,924,867	3,625,459,500
1938	25,200	642,016	705,668,589	1,807,478,025	1,428,286,778	3,337,681,366
1939	24,805	658,114	737,811,153	1,836,159,375	1,331,051,901	3,474,783,528
1940	25,513	762,244	920,872,865	2,449,721,003	1,942,471,238	4,529,173,316
1941	26,293	961,178	1,264,862,643	3,296,547,019	2,605,119,788	6,076,308,124
1942	27,862	1,152,091	1,682,804,842	4,037,102,725	3,309,973,758	7,553,794,972
1943	27,652	1,241,068	1,987,292,384	4,690,493,083	3,816,413,541	8,732,860,999
1944	28,483	1,222,882	2,029,621,370	4,832,333,356	4,016,776,010	9,702,692,519
1945	29,050	1,119,372	1,845,773,449	4,473,668,847	3,564,315,899	8,250,368,866
1946	31,249	1,058,156	1,740,687,254	4,358,254,766	3,467,004,980	8,035,692,471
1947	32,744	1,131,750	2,085,926,966	5,534,280,019	4,292,055,802	10,091,026,580
1948	33,420	1,155,721	2,409,368,190	6,632,881,628	4,938,786,981	11,875,169,685
1949	35,792	1,171,207	2,591,890,857	6,843,231,084	5,330,566,434	12,479,593,200
1950	35,942	1,183,297	2,771,267,495	7,538,584,532	5,942,058,229	13,817,526,381
1951	37,021	1,258,375	3,276,280,917	9,074,526,353	6,940,946,783	16,392,187,132
1952	37,929	1,288,382	3,637,620,160	9,146,172,494	7,443,533,199	16,982,687,035
1953	38,107	1,327,451	3,957,018,348	9,380,558,682	7,993,069,351	17,785,416,854
1954	38,028	1,267,966	3,896,687,691	9,241,857,554	7,902,124,137	17,554,527,504
1955	38,182	1,298,461	4,142,409,534	10,338,202,165	8,753,450,496	19,513,932,811
1956	37,428	1,353,020	4,570,692,190	11,721,536,889	9,605,324,579	21,636,748,986
1957	37,875	1,359,061	4,819,627,999	11,900,751,703	9,822,084,726	22,138,594,311
1958	36,741	1,289,602	4,802,496,260	11,821,567,471	9,792,505,031	22,163,186,308
1959	36,193	1,303,956	5,073,073,706	12,552,200,543	10,320,962,881	23,311,601,481
1960	35,083	1,302,206	5,070,237,646	12,547,859,708	..	23,281,716,014
1960 ⁴	36,682	1,294,629	5,207,167,393	12,720,947,113	10,517,232,701	23,747,457,083

¹ For 1924-51, inclusive, the value added by manufacture is computed by subtracting cost of fuel, electricity and materials from gross value of products; for 1952 and 1953 the deduction is made from value of factory shipments and for 1954 and subsequent years from the calculated value of production. Figures prior to 1924 are not comparable because statistics for cost of electricity are not available.

² In 1952 gross value of products was replaced by selling value of factory shipments, see text immediately preceding this table. ³ A change in the method of computing the number of employees in the years 1925 to 1930, inclusive, increased the number somewhat over that which the method otherwise used would have given. In 1931, however, the method in force prior to 1925 was re-adopted.

⁴ Newfoundland is included from 1949 but figures for the fish processing industry for 1949 and 1950 are not available for that province and are not included. ⁵ Based on the revised Standard Industrial Classification; see text on pp. 623-624.

Provincial distribution of manufactures for certain years from 1917-60 is given in Table 2.

2.—Summary Statistics of Manufactures, by Province, Certain Years 1917-60

Province and Year	Estab- lish- ments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture ¹	Gross Value of Products ²
	No.	No.	\$	\$	\$	\$
Newfoundland—						
1917 ³	793	6,934	15,486,336	31,228,173	32,918,776	67,264,282
1953	939	10,575	26,604,908	44,972,021	57,784,697	106,524,603
1955	785	10,361	28,604,468	49,914,856	60,686,922	115,579,036
1957	916	10,473	32,783,715	53,995,122	56,543,792	117,713,795
1959	797	9,020	30,481,291	54,001,782	57,754,510	119,007,053
1960 ⁴	635	9,489	32,703,188	58,903,797	64,650,269	129,284,578
Prince Edward Island—						
1917	411	1,556	663,251	3,087,621	1,750,135	4,837,756
1920	370	1,287	855,210	4,164,223	2,135,857	6,300,080
1929 ⁵	263	2,074	727,286	2,862,725	1,466,446	4,408,608
1933	249	991	529,684	1,590,834	1,126,826	2,775,787
1939	222	1,088	617,945	2,239,117	1,243,979	3,543,681
1946	246	1,755	1,651,469	7,582,046	3,469,435	11,200,310
1949	251	1,747	2,133,555	13,537,144	4,338,320	18,123,200
1953	216	1,809	3,095,845	16,963,798	5,878,761	23,198,970
1955	204	1,769	3,074,085	16,803,035	6,431,660	23,628,831
1957	193	1,663	3,278,822	18,315,249	6,579,507	24,952,853
1959	178	1,769	3,856,186	19,947,082	7,391,294	27,670,896
1960 ⁴	184	1,806	4,254,917	21,220,060	8,690,360	30,231,361
Nova Scotia—						
1917	1,337	25,252	18,838,051	102,415,215	57,565,703	159,980,918
1920	1,345	23,425	25,625,089	85,724,785	61,371,243	147,096,028
1929 ⁵	1,094	19,986	16,905,885	50,725,562	35,676,421	89,787,548
1933	1,277	12,211	9,604,680	25,354,319	19,983,257	47,912,432
1939	1,083	17,627	10,651,685	33,332,195	35,885,563	82,139,572
1946	1,397	29,724	43,060,259	100,354,480	71,738,873	178,793,420
1949	1,480	29,311	54,086,577	135,841,899	102,294,298	247,592,389
1953	1,591	32,040	76,390,755	180,543,535	127,917,165	320,012,264
1955	1,524	30,218	76,555,923	175,194,419	139,645,423	331,129,690
1957	1,356	31,530	90,634,615	238,286,745	175,682,924	347,299,045
1959	1,314	28,168	87,694,029	223,016,082	161,451,957	398,663,678
1960 ⁴	1,278	28,006	92,280,125	220,292,841	174,808,237	406,182,088
New Brunswick—						
1917	943	19,710	12,893,014	32,380,621	27,027,725	59,408,346
1920	901	19,007	19,266,821	60,812,641	45,803,164	106,615,805
1929 ⁵	803	17,952	15,127,716	39,800,366	26,640,786	68,145,012
1933	747	11,336	9,308,100	20,442,421	18,166,713	41,345,622
1939	803	14,501	12,659,162	35,617,614	27,041,195	66,058,151
1946	993	22,732	33,151,919	96,389,299	67,783,377	170,753,741
1949	1,060	23,446	44,219,819	131,804,253	91,187,375	231,506,191
1953	1,094	24,471	59,753,045	163,797,711	120,617,345	295,750,419
1955	1,052	22,434	56,683,345	160,905,219	120,808,214	294,829,050
1957	981	20,985	60,485,307	174,741,863	123,547,460	311,795,501
1959	915	20,927	63,872,872	178,064,623	133,935,278	325,478,717
1960 ⁴	901	22,267	71,586,377	209,113,069	158,035,175	377,110,146
Quebec—						
1917	7,032	183,043	141,008,616	385,212,984	380,882,409	766,095,393
1920	7,530	183,748	202,516,550	553,558,520	499,643,217	1,053,201,737
1929 ⁵	6,948	206,580	225,226,808	537,270,055	537,796,395	1,108,592,775
1933	7,856	157,481	134,696,386	292,560,568	288,504,782	604,496,078
1939	8,373	220,321	223,757,767	536,828,039	470,385,279	1,045,757,585
1946	10,818	357,276	565,986,105	1,297,009,099	1,125,991,848	2,497,971,521
1949	11,579	390,275	809,579,270	2,027,793,643	1,651,629,668	3,788,497,123
1953	12,132	441,555	1,225,573,214	2,816,373,112	2,424,647,499	5,386,784,863
1955	12,194	429,675	1,271,077,953	3,152,541,331	2,622,333,056	5,922,367,074
1957	12,250	449,383	1,477,828,336	3,750,908,799	2,947,897,608	6,679,595,056
1959	11,584	431,237	1,546,932,670	3,749,731,529	2,998,776,012	6,916,199,594
1960 ⁴	11,961	433,949	1,620,314,474	3,881,172,827	3,172,769,694	7,206,096,003
Ontario—						
1917	9,061	299,389	258,393,065	794,556,502	662,174,261	1,456,730,763
1920	9,113	295,674	362,941,317	1,071,843,374	792,267,562	1,864,110,936
1929 ⁵	9,348	328,533	406,622,627	1,056,530,202	916,671,816	2,020,492,433
1933	9,542	224,816	220,530,088	464,544,563	465,103,842	958,776,888
1939	9,824	318,871	378,376,209	907,011,461	791,428,569	1,745,674,707
1946	11,424	498,120	845,216,547	2,001,900,592	1,659,284,622	3,754,523,701

For footnotes, see end of table, p. 618.

3. Summary Statistics of Manufactures, by Province, Certain Years 1917-60—concluded

Province or Territory and Year	Establishments	Employees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture ¹	Gross Value of Products ²
	No.	No.	\$	\$	\$	\$
Ontario—concluded						
1917.....	12,951	557,190	1,305,544,434	3,256,454,918	2,708,554,013	6,103,804,834
1953.....	13,114	634,554	2,017,982,218	4,560,134,562	4,130,126,462	8,876,504,990
1955.....	13,276	613,872	2,088,905,627	5,014,225,423	4,426,654,771	9,617,642,961
1957.....	13,580	644,245	2,430,676,464	5,827,317,500	5,047,710,789	11,078,592,688
1959.....	13,081	615,746	2,564,684,234	6,190,618,182	5,332,081,500	11,668,460,562
1960 ⁴	13,387	603,467	2,585,676,553	6,141,903,570	5,303,807,608	11,685,675,652
Manitoba—						
1917.....	732	18,939	16,513,423	69,715,149	42,280,801	111,995,950
1920.....	747	23,728	32,372,081	92,729,271	62,776,912	155,606,183
1929 ⁵	861	24,012	31,224,596	87,832,324	63,925,015	155,266,294
1933.....	1,010	18,871	18,687,430	44,579,998	37,390,275	83,934,777
1939.....	1,087	23,910	28,444,798	82,408,293	48,810,544	134,293,595
1946.....	1,357	38,367	61,018,345	223,096,935	122,780,805	351,887,099
1949.....	1,520	41,956	86,088,380	299,101,498	167,335,495	474,681,912
1953.....	1,540	43,740	121,126,279	345,403,115	229,797,439	584,872,459
1955.....	1,549	41,318	121,718,573	329,698,765	247,472,108	588,351,081
1957.....	1,590	43,884	140,200,256	379,799,214	273,162,757	664,629,736
1959.....	1,607	43,145	153,998,025	422,094,615	308,341,217	743,609,352
1960 ⁴	1,592	42,339	154,263,811	419,583,431	306,434,692	738,457,346
Saskatchewan—						
1917.....	560	6,230	5,403,332	22,040,674	13,894,179	35,934,853
1920.....	554	6,709	9,571,175	34,894,105	22,610,861	57,504,966
1929 ⁵	594	7,025	9,105,597	51,003,566	23,002,952	75,368,605
1933.....	673	4,782	4,848,763	19,124,030	11,478,634	31,559,387
1939.....	737	6,475	7,346,127	38,782,135	20,283,273	60,650,589
1946.....	955	11,957	17,956,317	126,595,761	38,459,630	168,356,619
1949.....	962	10,841	22,273,942	164,349,341	47,356,949	215,742,708
1953.....	1,062	11,604	32,395,518	180,303,942	79,941,332	266,613,086
1955.....	960	11,490	34,825,511	174,078,701	113,598,622	295,162,037
1957.....	844	12,012	40,875,349	189,106,737	109,598,807	306,115,112
1959.....	883	12,529	47,033,816	213,376,697	125,877,439	347,320,321
1960 ⁴	887	12,918	49,764,266	215,404,848	119,776,935	344,773,261
Alberta—						
1917.....	636	9,461	8,662,417	42,632,212	23,883,673	66,515,885
1920.....	666	10,955	15,210,628	56,139,646	29,812,891	85,952,537
1929 ⁵	736	12,216	14,585,734	62,500,175	36,824,969	100,966,196
1933.....	874	9,753	9,573,468	29,425,975	18,876,929	49,395,514
1939.....	961	12,712	14,977,700	53,151,149	32,618,153	87,474,080
1946.....	1,315	22,649	34,939,088	169,425,176	83,735,011	257,031,867
1949.....	1,685	26,425	55,115,554	251,364,059	114,681,296	371,995,120
1953.....	2,072	33,082	92,605,153	346,221,162	199,660,428	555,814,827
1955.....	2,126	34,846	106,548,815	366,022,853	263,308,701	641,148,235
1957.....	1,893	39,089	137,077,438	461,134,040	312,037,090	784,480,512
1959.....	1,830	39,522	152,505,413	524,268,966	346,299,750	887,316,797
1960 ⁴	1,848	39,157	156,339,528	524,908,916	353,197,544	889,657,800
British Columbia—						
1917 ⁶	1,133	37,943	35,426,675	87,637,833	71,673,094	159,310,927
1920 ⁶	1,306	34,360	49,135,005	125,405,084	104,851,641	230,256,725
1929 ^{5,6}	1,569	48,153	57,764,968	141,145,838	113,082,137	260,418,645
1933 ⁶	1,552	28,417	28,469,225	70,166,220	59,034,923	133,879,330
1939.....	1,710	42,554	53,881,994	136,655,872	103,263,292	247,948,600
1946.....	2,731	75,484	137,506,645	335,708,533	293,352,652	644,527,898
1949.....	3,493	82,934	196,403,722	531,112,329	409,665,348	959,008,088
1953.....	4,317	93,844	300,921,318	724,495,754	615,686,215	1,366,823,690
1955.....	4,486	102,408	353,810,727	895,973,668	750,877,508	1,679,344,816
1957.....	4,250	105,631	405,129,932	985,519,123	767,914,301	1,785,298,750
1959.....	3,992	101,168	421,405,086	974,924,176	848,404,204	1,875,142,125
1960 ⁴	3,995	100,507	439,368,651	1,026,998,973	853,836,400	1,936,917,630
Yukon and N.W.T.—						
1939.....	5	55	97,766	138,500	92,054	242,968
1946.....	13	92	200,560	172,845	408,727	646,295
1949.....	18	148	359,068	643,807	604,896	1,377,453
1953.....	30	177	569,995	1,349,970	1,012,008	2,516,683
1955.....	26	170	604,507	2,843,895	1,732,511	4,751,000
1957.....	22	166	657,765	1,627,311	1,409,691	3,221,268
1959.....	12	115	610,084	2,156,809	649,720	2,832,386
1960 ⁴	14	124	615,503	1,444,781	1,325,787	3,071,218

¹ See footnote 1, Table 1, p. 616.² In 1952 gross value of products was replaced by selling value of factory

shipments; see text on p. 615.

³ Excludes figures for the fish processing industry which are not available⁴ Based on the revised Standard Industrial Classification; see text on pp. 623-624.

footnote 3, Table 1, p. 616.

⁵ Includes Yukon Territory.⁶ See

The figures in Table 3 trace the tendencies in manufacturing industries as clearly as possible from 1917 to 1960. In analysing statistics of production and materials used, price changes should be borne in mind, particularly the inflation of values in the years immediately following World War I, the drop in prices of commodities during the depressions following 1921 and 1930, and the increases again in World War II and the postwar period.

3.—Significant Statistics of Manufactures for Certain Years 1917-60

Item	1917	1920	1929 ¹	1933	1939
Establishments.....No.	21,845	22,532	22,216	23,780	24,805
Total employees....."	606,523	598,893	666,531	468,658	658,114
Av. per establishment....."	27.8	26.6	30.0	19.7	26.5
Total earnings.....\$	497,801,844	717,493,876	777,291,217	436,247,824	737,811,153
Av. per establishment.....\$	22,788	31,843	34,988	18,345	29,744
Av. per employee.....\$	821	1,198	1,166	931	1,121
Supervisory and office employees.....No.	64,918	78,324	88,841	86,636	124,772
Av. per establishment....."	3.0	3.5	4.0	3.6	5.0
Total earnings.....\$	85,353,667	141,837,361	175,553,710	139,317,946	217,839,334
Av. per employee.....\$	1,315	1,811	1,976	1,608	1,746
Production workers.....No.	541,605	520,559	577,690	382,022	533,342
Av. per establishment....."	24.8	23.1	26.0	16.1	21.5
Total earnings.....\$	412,448,177	575,656,515	601,737,507	296,929,878	519,971,819
Av. per employee.....\$	762	1,106	1,042	777	975
Cost of materials.....\$	1,539,678,811	2,085,271,649	2,029,670,813	967,788,928	1,836,159,375
Av. per establishment.....\$	70,482	92,547	91,361	40,698	74,072
Av. per employee.....\$	2,539	3,482	3,045	2,065	2,790
Value added by manufacture ²\$	1,281,131,980	1,621,273,348	1,755,386,937	919,671,181	1,531,051,901
Av. per establishment ²\$	58,646	71,954	79,015	38,674	61,724
Av. per employee ²\$	2,112	2,707	2,634	1,962	2,326
Gross value of products.....\$	2,820,810,791	3,706,544,997	3,883,446,116	1,954,075,785	3,474,783,528
Av. per establishment.....\$	129,128	164,501	174,804	82,173	140,084
Av. per employee.....\$	4,651	6,189	5,286	4,170	5,280
	1944	1953	1958	1959	1960 ³
Establishments.....No.	28,483	38,107	36,741	36,193	36,682
Total employees....."	1,222,882	1,327,451	1,289,602	1,303,956	1,294,629
Av. per establishment....."	42.9	34.8	35.1	36.0	35.3
Total earnings.....\$	2,029,621,270	3,957,018,348	4,802,496,260	5,073,073,706	5,207,167,393
Av. per establishment.....\$	71,257	103,840	130,712	140,167	141,954
Av. per employee.....\$	1,660	2,981	3,724	3,891	4,022
Supervisory and office employees.....No.	192,558	274,225	307,867	306,049	309,644
Av. per establishment....."	6.8	7.2	8.4	8.5	8.4
Total earnings.....\$	418,065,594	1,016,679,409	1,469,324,281	1,529,617,999	1,606,967,827
Av. per employee.....\$	2,171	3,707	4,773	4,998	5,190
Production workers.....No.	1,030,324	1,053,226	981,735	997,907	984,985
Av. per establishment....."	36.2	27.6	26.7	27.6	26.9
Total earnings.....\$	1,611,555,776	2,940,338,939	3,333,171,979	3,543,455,707	3,600,199,566
Av. per employee.....\$	1,564	2,792	3,395	3,551	3,655
Cost of materials.....\$	4,832,333,356	9,380,558,682	11,821,567,471	12,552,200,543	12,720,947,113
Av. per establishment.....\$	169,657	246,163	321,754	346,813	346,790
Av. per employee.....\$	3,952	7,067	9,167	9,626	9,826
Value added by manufacture ²\$	4,015,776,010	7,993,069,351	9,792,505,931	10,320,962,881	10,517,332,701
Av. per establishment ²\$	140,989	209,753	260,528	285,165	286,716
Av. per employee ²\$	3,284	6,021	7,593	7,915	8,124
Gross value of products.....\$	9,073,692,519	17,785,416,854 ⁴	22,163,186,308 ⁴	23,311,601,481 ⁴	23,747,457,083 ⁴
Av. per establishment.....\$	318,565	466,725	603,228	644,091	647,387
Av. per employee.....\$	7,420	13,398	17,186	17,878	18,343

¹ A change in the method of computing the number of production workers in the years 1925 to 1930 inclusive increased the number somewhat over that which the method otherwise used would have given. There was therefore a proportionate reduction in the averages for 1925-30 per employee as compared with what these averages would have been under the other method. In 1931, however, the method in force prior to 1925 was re-adopted. The figures for 1931 and later years are therefore comparable with those for 1924 and earlier years.

² Net value of products; see footnote 1, Table 1, p. 616.

³ Based on the revised Standard Industrial Classification; see text on pp. 623-624.

⁴ In 1952 gross value of products was replaced by value of factory shipments; see text on p. 615.

Subsection 1.—Consumption of Manufactured Products*

The value of all manufactured commodities made available for consumption in 1959 was \$24,470,000,000, a figure obtained by adding to the value of manufactured products the value of the imports of manufactured goods and deducting the value of the exports. More accurate statistics could be presented were it possible to exclude from the value of factory shipments the duplications involved when the products of one manufacturing establishment become the material worked upon in another. Iron, vegetable, wood and paper, non-ferrous metal, animal, and non-metallic mineral products were, in that order, the leading groups in the value of finished products made available for consumption in 1959. There was an increase of 5.8 p.c. in the total value of manufactured products available for consumption in 1959 compared with the previous year.

Wood and paper, non-ferrous metal, and animal products are manufactured in Canada in greater quantities than required for home consumption, providing export balances in these groups. Canada in the past imported large quantities of iron and steel, textiles, chemicals and non-metallic mineral products, despite large home production. However, the recent expansion of the iron and steel, chemical and non-metallic mineral products industries is enabling Canada to meet a greater proportion of the domestic requirements.

In Table 4, showing consumption of manufactured products, the component material classification is still used to agree with the classification used for imports and exports. The Standard Industrial Classification grouping used elsewhere throughout this Chapter will be adopted for trade statistics beginning with 1960.

* 1960 figures not available at time of going to press.

4.—Consumption of Manufactured Products, Certain Years 1929-59, and by Industrial Group 1959

Year and Industrial Group	Value of Products Manufactured ¹	Manufactured and Partly Manufactured Goods ²		Value of Manufactured Products Available for Consumption
		Value of Net Imports	Value of Domestic Exports	
	\$	\$	\$	\$
1929.....	3,883,446,116	939,130,201	686,876,071	4,135,700,246
1933.....	1,954,075,785	298,068,344	365,232,113	1,886,912,016
1939.....	3,474,783,528	542,364,930	646,853,938	3,370,294,520
1944.....	9,073,692,519	1,302,413,996	2,668,575,781	7,707,530,734
1946.....	8,035,692,471	1,390,123,100	1,701,677,026	7,724,138,545
1949.....	12,479,593,300	2,043,583,929	2,017,055,615	12,506,121,614
1953.....	17,785,416,854	3,519,418,503	2,781,269,785	18,523,565,572
1955.....	19,513,933,811	3,781,212,944	3,143,126,437	20,152,020,318
1957.....	22,183,594,311	4,525,870,602	3,251,376,449	23,458,088,464
1958.....	22,163,186,308	4,046,816,666	3,079,410,217	23,130,592,757
1959				
Vegetable products.....	3,230,075,138	367,473,086	209,430,164	3,388,118,960
Animal products.....	2,514,919,044	72,287,866	132,523,520	2,454,683,390
Textiles and textile products.....	1,688,475,623	353,215,720	23,035,172	2,018,656,171
Wood and paper products.....	4,290,656,349	258,184,010	1,471,793,091	3,077,047,268
Iron and its products.....	5,085,234,191	2,003,849,165	405,529,573	6,683,553,783
Non-ferrous metal products.....	2,787,915,331	407,155,941	654,708,958	2,540,362,314
Non-metallic mineral products.....	1,962,245,129	302,237,544	134,043,311	2,130,439,362
Chemicals and allied products.....	1,320,533,902	322,639,579	201,728,577	1,441,444,904
Miscellaneous industries ³	431,546,774	371,905,567	67,787,706	735,664,635
Totals, 1959.....	23,311,601,481	4,458,949,378	3,300,580,072	24,469,970,787

¹ In 1952 gross value of products was replaced by selling value of factory shipments; see text on p. 615.

² Figures for the years 1929 and 1932 are for the fiscal years ended Mar. 31 of the following years; 1939-59 figures are for the calendar year. Net imports are total imports less foreign products re-exported. ³ Not comparable with years prior to 1958 since certain items formerly included are no longer considered as merchandise trade; these exclusions dropped about \$30,000,000 from the value of exports, \$150,000,000 from the value of imports, and thus \$120,000,000 from the available-for-consumption value.

Subsection 2.—Value and Volume of Manufactured Production

Value of Manufactured Production.—In the interpretation of manufacturing values over a number of years, variations in the level of prices must be borne in mind. In recent years, owing to great changes in prices, unadjusted value series used in isolation have become increasingly inadequate as indicators of economic trends. Consequently, interest has shifted to measures of volume. The range of prices since 1929, on the base period 1935-39 = 100, is as follows:—

Year	General Wholesale Price Index	Price Index of Fully and Chiefly Manufactured Products	Year	General Wholesale Price Index	Price Index of Fully and Chiefly Manufactured Products
1929.....	124.6	123.7	1955.....	218.9	224.5
1933.....	87.4	93.3	1956.....	225.6	231.5
1939.....	99.2	101.9	1957.....	227.4	237.9
1944.....	130.6	129.1	1958.....	227.8	238.3
1946.....	138.9	138.0	1959.....	230.6	241.6
1949.....	198.3	199.2	1960.....	230.9	242.2
1953.....	220.7	223.8			

Volume of Manufactured Production.—Real income is ultimately measured in goods and services so that the growth of the volume of manufacturing production, as distinguished from its value, becomes a matter of great significance. The important thing to know is whether consumers are getting more goods and services and not whether they are expending more dollars and cents.

During the past few years the Dominion Bureau of Statistics has been engaged in the reconstruction of the index of industrial production* which was first published in 1926 and later subjected to several major revisions. The latest reconstruction was made possible by the availability of a great deal of basic data. Annual statistics valuable for this project have been collected by the Bureau from the end of World War I to the present and the scope of the monthly information has been greatly expanded. Applying methods developed through the experience of the past quarter-century, it has been possible to compute an index with a fair measure of accuracy from 1935 to the present.

The manufacturing sector is divided at the major group level into durable manufactures and non-durable manufactures. The movement of durable goods normally varies from that of non-durables; there tends to be greater fluctuation in durables from prosperity to depression and the demand for non-durables is more constant.

Changes in the volume of durable and non-durable goods produced in the 1945-59 period are discussed at pp. 605-608. Table 5 shows the fluctuations in the volume indexes of durable, non-durable and total manufactured goods produced during the years 1945-60, and Tables 6 and 7 show the fluctuations in the groups comprised within the durable and non-durable classifications during the same period.

Compared with 1959, the durable group as a whole decreased by 2.1 p.c. in 1960 and the non-durable group increased 1.1 p.c., resulting in a slightly lower volume of output for all manufactures. All groups within the durable classification, with the exception of non-ferrous metal products, were lower; wood products decreased 0.4 p.c., iron and steel products 6.7 p.c., transportation equipment 1.1 p.c., electrical apparatus and supplies 2.5 p.c. and non-metallic mineral products 5.5 p.c. The increase in non-ferrous metal products was 10.1 p.c.

Within the non-durable classification, only four of the twelve groups reported declines compared with 1959. Foods and beverages increased 1.4 p.c. and 2.8 p.c., respectively. Tobacco went up 1.2 p.c., paper products 2.6 p.c., printing industries 2.3 p.c., petroleum and coal products 3.8 p.c., chemicals 5.4 p.c. and miscellaneous products 4.6 p.c. Decreases were reported by the rubber, leather, textile and clothing groups.

* For a description of the methods used in constructing the index and a description of its scope, see DBS publication *Revised Index of Industrial Production, 1936-1957* (Catalogue No. 61-502).

5.—Index of the Total Volume of Manufactured Production classified on the Basis of Durable and Non-durable Goods, 1945-60

(1949=100)

NOTE.—Indexes for the years 1935-44 are given in the 1961 Year Book, p. 637.

Year	Durable Manufactures	Non-durable Manufactures	All Manufactures	Year	Durable Manufactures	Non-durable Manufactures	All Manufactures
1945.....	99.8	88.2	92.9	1953.....	133.6	120.2	126.4
1946.....	79.9	89.8	85.2	1954.....	124.8	121.2	122.9
1947.....	93.3	93.2	93.2	1955.....	139.7	130.4	134.7
1948.....	98.4	96.3	97.3	1956.....	153.3	138.1	145.1
1949.....	100.0	100.0	100.0	1957.....	146.7	139.7	142.9
1950.....	106.5	106.0	106.2	1958.....	139.9	141.3	140.7
1951.....	119.9	110.8	115.0	1959.....	149.5	150.1	149.8
1952.....	124.8	113.2	118.5	1960.....	146.4	151.8	149.3

6. Indexes of the Volume of Manufactured Production of the Groups Comprised within the Durable Manufactures Classification, 1945-60

(1949=100)

NOTE.—Indexes for the years 1935-44 are given in the 1961 Year Book, p. 638.

Year	Wood Products	Iron and Steel Products	Transportation Equipment	Non-ferrous Metal Products	Electrical Apparatus and Supplies	Non-metallic Mineral Products
1945.....	77.2	96.3	157.0	98.8	70.7	63.7
1946.....	86.8	80.8	80.6	81.8	67.7	72.0
1947.....	98.2	93.6	95.3	89.6	89.6	86.3
1948.....	100.6	101.5	97.2	99.2	91.5	92.2
1949.....	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	108.2	102.5	108.3	104.0	112.5	111.0
1951.....	114.8	117.0	131.3	114.1	120.7	119.8
1952.....	115.8	118.9	149.1	112.2	124.5	122.8
1953.....	125.4	115.3	165.2	120.1	150.9	139.2
1954.....	124.2	106.2	137.3	117.0	151.7	146.1
1955.....	136.4	123.8	145.1	127.5	176.2	171.1
1956.....	138.3	145.3	157.9	133.0	191.3	191.5
1957.....	127.3	139.6	151.2	127.6	183.6	191.3
1958.....	132.0	128.3	132.5	126.7	176.2	205.9
1959.....	136.6	147.2	131.5	134.7	184.8	223.2
1960.....	136.0	137.3	130.0	148.3	180.2	210.9

7.—Indexes of the Volume of Manufactured Production of the Groups Comprised within the Non-durable Manufactures Classification, 1945-60

(1949=100)

NOTE.—Indexes for the years 1935-44 are given in the 1961 Year Book, pp. 639-640.

Year	Foods	Beverages	Tobacco and Tobacco Products	Rubber and Rubber Products	Leather Products	Textiles
1945	98.7	71.8	103.2	102.1	114.5	87.5
1946	103.0	82.2	90.6	89.5	124.0	88.7
1947	100.4	87.3	93.4	127.4	109.1	94.0
1948	99.5	95.3	93.4	116.4	95.5	97.3
1949	100.0	100.0	100.0	100.0	100.0	100.0
1950	104.4	102.1	103.4	116.8	95.6	112.5
1951	107.0	106.2	95.0	124.9	90.4	113.1
1952	112.8	115.5	108.0	118.9	101.0	102.9
1953	115.1	124.6	120.3	130.3	106.4	107.9
1954	120.2	121.7	124.7	119.2	100.2	94.3
1955	125.6	130.6	135.5	141.0	106.9	114.0
1956	131.4	138.4	145.9	154.0	115.6	117.3
1957	133.2	143.2	161.0	147.8	115.6	117.6
1958	140.1	147.7	173.2	137.2	114.4	109.9
1959	145.0	155.8	179.9	161.1	120.3	124.4
1960	147.1	160.2	182.0	143.3	111.8	122.5
	Clothing (incl. knitting mills)	Paper Products	Printing, Publishing and Allied Industries	Products of Petroleum and Coal	Chemicals and Allied Products	Miscellaneous Industries
1945	91.4	69.1	67.3	71.9	107.1	98.3
1946	95.3	81.0	76.9	74.3	87.0	80.2
1947	92.2	89.1	83.6	79.8	90.8	84.1
1948	97.6	94.9	92.6	89.9	95.7	81.4
1949	100.0	100.0	100.0	100.0	100.0	100.0
1950	101.3	109.3	101.5	111.9	107.7	104.8
1951	101.2	117.5	105.1	128.5	120.0	119.0
1952	111.4	113.4	107.5	140.1	122.3	121.8
1953	115.0	118.1	114.7	153.5	139.9	141.1
1954	108.9	124.1	121.6	165.0	152.1	134.3
1955	112.8	131.0	127.1	188.3	165.5	136.4
1956	117.6	137.8	137.3	216.1	174.8	147.0
1957	116.8	135.5	138.2	223.5	183.4	153.3
1958	114.4	135.6	134.4	216.8	198.0	166.3
1959	113.1	144.7	143.2	241.5	208.4	183.2
1960	107.9	148.4	146.5	250.6	219.7	191.6

Section 2.—Manufactured Production Variousely Classified

Beginning with the publication of 1960 statistics of manufacturing, industries and groups of industries follow the revised Standard Industrial Classification,* which has been established to take into account the changes in the structure of Canadian industry that have occurred during the past decade. In the past, commodity terms have been used in describing industries, so that the tables in previous editions of the Year Book (and in certain tables of this volume which have not yet been brought into line) contain industry titles such as pulp and paper, petroleum products, aircraft and parts, etc. In revising the Standard Industrial Classification, it was considered advisable to assign to each industry its most descriptive title, a title to be used whenever the industry was mentioned. Some industries are associated with particular processes (such as knitting mills and foundries)

* DBS publication *Standard Industrial Classification Manual* (Catalogue No. 12-501).

and others have traditional titles (such as machine shops and commercial printing). Some are best described in terms of the principal commodities they produce and it is necessary to distinguish these manufacturing industries from industries engaged in wholesale trade or retail trade in the same commodities. Therefore, many new titles of manufacturing industries contain such terms as "manufacturers", "industry", "plants", "mills" and "factories". These terms are applied, as far as possible, according to the usage in the industries concerned because it was felt that this terminology would be widely understood and clarity is more desirable than consistency in industry titles.

Tables 8, 9 and 10 of this Section give 1960 figures on the revised Standard Industrial Classification basis and for Table 8 the figures have been worked back to 1957 on the revised basis, except for value added by manufacture. (All figures for 1959 and previous years based on the revised classification are subject to revision.) For the other tables, 1959 figures on the old basis were the latest available at the time of going to press and those including analyses by industrial groups are based on the old classification.

Subsection 1.—Manufactures classified by Industrial Groups and Individual Industries

The tables of this Subsection give detailed statistics showing the trends of production by industrial groups and individual industries. Table 8 gives comparative summary statistics for the industrial groups for the period 1957-60; Table 9 contains details of establishments, employment and output for the individual industries within the major groups for 1960 and Table 10 gives similar data for the forty leading industries in 1960, ranked according to selling value of factory shipments; Table 11 gives quantities and values of principal commodities produced in 1959—figures for 1960 were not available at the time of going to press.

8.—Summary Statistics of Manufactures, by Industrial Group, 1957-60

NOTE.—All years based on the revised Standard Industrial Classification; see text above.

Industrial Group and Year	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Foods and Beverages—						
1957.....	8,516	192,438	592,057,489	2,752,689,280	..	4,229,054,164
1958.....	8,404	190,835	625,501,630	2,982,880,312	..	4,579,602,236
1959.....	8,150	192,396	664,835,670	3,012,334,446	..	4,728,164,094
1960.....	8,488	198,611	700,983,814	3,118,200,331	1,704,539,866	4,880,293,652
Tobacco Products—						
1957.....	49	9,905	33,322,821	160,710,422	..	249,734,356
1958.....	40	10,319	37,143,602	206,043,534	..	305,138,636
1959.....	40	10,287	38,078,218	212,770,678	..	324,563,661
1960.....	40	9,731	38,354,483	216,354,230	117,789,866	334,413,635
Rubber—						
1957.....	90	22,186	83,219,238	144,271,902	..	326,182,742
1958.....	91	19,955	76,469,794	127,543,194	..	308,488,244
1959.....	90	21,101	86,894,694	160,441,694	..	347,798,004
1960.....	92	20,311	84,525,519	152,660,298	168,965,070	323,053,118
Leather—						
1957.....	641	31,810	79,415,508	124,774,575	..	243,747,757
1958.....	619	30,981	80,878,173	127,543,441	..	253,536,245
1959.....	600	31,601	84,066,826	145,912,239	..	275,622,759
1960.....	608	30,424	83,918,955	134,436,007	130,595,924	268,114,309
Textiles—						
1957.....	936	68,315	200,794,739	411,453,084	..	745,654,396
1958.....	909	63,265	192,526,181	393,711,987	..	736,758,566
1959.....	889	63,524	202,525,667	429,484,882	..	800,861,155
1960.....	924	61,756	206,500,220	430,561,782	368,610,350	810,522,933

8.—Summary Statistics of Manufactures, by Industrial Group, 1957-60—continued

Industrial Group and Year	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Knitting Mills—						
1957.....	310	21,661	50,216,758	88,782,158	..	172,161,757
1958.....	321	20,936	49,829,169	88,610,388	..	173,576,575
1959.....	319	20,992	52,187,295	98,658,641	..	189,267,687
1960.....	362	20,765	54,050,926	104,085,566	93,359,607	198,159,994
Clothing—						
1957.....	2,535	90,091	215,263,695	397,422,651	..	743,578,122
1958.....	2,446	86,768	214,888,038	388,093,909	..	742,185,179
1959.....	2,344	86,659	224,040,281	399,842,421	..	759,219,308
1960.....	2,391	86,875	227,213,881	402,732,198	369,365,614	770,468,489
Wood—						
1957.....	8,736	92,896	267,101,547	569,064,408	..	1,011,994,598
1958.....	7,939	88,103	267,793,928	558,260,730	..	1,017,647,155
1959.....	7,835	90,018	277,560,778	590,818,752	..	1,079,259,366
1960.....	7,490	85,262	283,521,417	598,131,213	454,978,488	1,068,041,527
Furniture and Fixtures—						
1957.....	2,010	34,028	101,218,122	157,532,471	..	320,395,746
1958.....	1,859	32,812	101,069,479	155,669,395	..	322,851,798
1959.....	1,925	33,803	110,088,601	168,063,646	..	344,422,717
1960.....	2,099	34,206	112,660,387	166,268,761	178,493,573	347,980,824
Paper and Allied Industries—						
1957.....	587	95,250	406,633,191	896,693,803	..	1,884,235,849
1958.....	563	93,443	411,614,113	891,897,757	..	1,902,602,012
1959.....	562	94,736	432,608,202	943,960,346	..	2,038,693,461
1960.....	581	95,433	458,624,265	979,872,639	1,035,904,372	2,128,107,197
Printing, Publishing and Allied Industries—						
1957.....	4,572	73,894	272,120,547	239,393,273	..	721,901,878
1958.....	3,272	70,677	284,473,776	237,188,035	..	746,227,780
1959.....	3,314	72,551	305,140,444	256,630,790	..	809,639,939
1960.....	3,462	73,694	322,788,021	274,846,086	586,142,192	865,930,729
Primary Metal—						
1957.....	435	92,894	417,080,485	1,454,593,368	..	2,549,702,386
1958.....	420	84,073	393,975,093	1,295,737,716	..	2,280,897,877
1959.....	419	90,258	443,770,471	1,553,515,061	..	2,690,557,431
1960.....	418	90,025	454,582,536	1,614,141,723	1,031,239,152	2,742,520,031
Metal Fabricating (except machinery and trans- portation equipment)—						
1957.....	2,456	100,836	393,932,440	629,056,894	..	1,326,624,578
1958.....	2,625	93,982	380,713,815	607,271,440	..	1,298,419,254
1959.....	2,613	98,824	418,305,886	675,064,982	..	1,415,334,196
1960.....	2,896	98,505	428,738,381	662,679,077	750,664,816	1,432,904,803
Machinery (except electrical)—						
1957.....	494	46,053	181,098,852	267,315,662	..	604,782,974
1958.....	523	41,348	173,722,971	258,642,207	..	554,564,798
1959.....	521	45,264	201,066,136	302,870,740	..	626,103,977
1960.....	533	43,495	199,427,682	299,071,885	329,763,223	642,458,967
Transportation Equipment—						
1957.....	619	144,560	591,129,521	1,294,052,559	..	2,274,936,864
1958.....	620	125,921	553,378,164	1,159,862,481	..	2,082,996,357
1959.....	640	113,583	531,689,833	1,125,799,941	..	2,028,871,429
1960.....	687	109,417	518,352,786	1,096,084,723	871,734,759	2,000,689,246

8. Summary Statistics of Manufactures, by Industrial Group, 1957-60—concluded

Industrial Group and Year	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Electrical Products—						
1957.....	512	90,060	351,625,916	558,721,926	..	1,192,289,559
1958.....	512	82,645	344,249,863	536,679,244	..	1,129,692,653
1959.....	521	81,501	346,073,301	567,011,098	..	1,166,451,062
1960.....	548	78,648	348,588,227	545,995,616	624,613,582	1,175,966,233
Non-metallic Mineral Products—						
1957.....	1,210	39,136	146,408,106	205,293,338	..	581,909,942
1958.....	1,221	39,844	157,759,293	213,562,053	..	614,792,340
1959.....	1,225	42,365	174,491,705	236,584,159	..	672,351,110
1960.....	1,331	41,606	173,438,100	230,750,338	373,070,496	647,461,580
Petroleum and Coal Products—						
1957.....	85	15,617	78,799,697	841,059,891	..	1,401,777,040
1958.....	96	16,316	85,551,656	839,526,042	..	1,385,215,080
1959.....	88	14,661	82,995,439	870,753,290	..	1,164,297,008
1960.....	96	14,513	85,446,911	873,633,610	279,705,068	1,197,967,758
Chemicals and Chemical Products—						
1957.....	1,123	53,986	218,998,357	512,831,179	..	1,139,898,207
1958.....	1,125	53,852	230,685,526	540,938,525	..	1,235,726,434
1959.....	1,123	53,995	239,748,172	577,665,923	..	1,316,356,806
1960.....	1,143	54,269	253,231,119	582,843,034	747,753,234	1,373,466,548
Miscellaneous Manufacturing Industries—						
1957.....	1,886	41,368	131,539,224	180,816,990	..	423,089,894
1958.....	1,901	41,881	140,203,712	201,265,358	..	456,327,891
1959.....	1,865	44,087	154,072,027	219,775,979	..	503,880,814
1960.....	2,493	47,083	172,219,763	237,597,396	300,043,449	538,935,510

Detailed Statistics by Group and Individual Industries.—Table 9 presents detailed statistics for 1960 regarding the individual industries under which all industrial plants in Canada are classified. The industries are assembled under 20 main groups according to the revised Standard Industrial Classification.

In interpreting the statistics of individual industries it should be noted that the figures on employment, production, etc., do not refer to individual products but to all the products produced by an industry. For example, the value of production of the confectionery industry amounting to \$142,963,856 in 1960 does not imply that this was the value of confectionery produced. What it means is that the firms whose principal product was confectionery had a value of production of \$142,963,856. This figure, in addition to confectionery, includes all the subsidiary products made by these firms, such as chewing gum, ice cream, and bread and other bakery products. Confectionery is also produced as a subsidiary product by firms credited to other industrial classifications. Table 10 gives principal statistics of the forty leading industries, from the standpoint of selling value of factory shipments. During the past few years there has been little change in the ranking of the major industries.

The quantities and values of the principal individual commodities produced in 1959 are given in Table 11 (1960 figures were not available at time of going to press). Commodities produced in small quantities are not included, but the list covers approximately 75 p.c. of total production.

9.—Principal Statistics of Individual Manufacturing Industries, 1960

NOTE.—Based on revised Standard Industrial Classification (see text on pp. 623-624).

Group and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Foods and Beverages	8,488	198,611	700,983,814	3,118,200,331	1,704,539,866	4,880,293,652
Meat Products—						
Slaughtering and meat packing plants.....	210	25,946	115,044,705	845,487,570	209,473,886	1,058,439,979
Animal oils and fats plants....	18	393	1,642,304	2,721,182	3,224,255	6,347,243
Sausage and sausage casing manufacturers.....	98	1,651	5,784,882	21,109,809	12,118,759	33,417,934
Poultry processors.....	245	4,764	11,297,426	99,437,265	19,069,808	119,235,468
Dairy Products—						
Butter and cheese plants.....	961	7,558	21,699,798	251,919,770	41,688,281	298,889,256
Pasteurizing plants.....	778	21,831	83,930,872	256,531,880	136,109,419	401,743,284
Condenseries.....	22	1,117	4,262,197	52,866,798	16,440,663	70,622,839
Ice cream manufacturers.....	45	1,482	5,533,232	17,702,126	11,679,252	29,928,936
Process cheese manufacturers.....	12	1,149	5,055,765	28,525,734	7,666,590	35,957,603
Fish products.....	402	13,357	29,717,560	103,863,226	53,004,983	169,529,913
Fruit and vegetable canners and preservers.....	361	16,608	48,526,369	191,657,764	122,374,398	313,175,773
Grain Mills—						
Feed manufacturers.....	1,406	8,065	26,020,624	215,800,261	63,871,883	284,574,959
Flour mills.....	58	4,173	17,416,164	174,270,710	48,610,433	224,657,381
Breakfast cereal manufacturers	20	1,452	6,292,916	15,547,786	24,660,149	40,377,941
Bakery Products—						
Biscuit manufacturers.....	50	6,069	18,079,044	41,846,105	44,402,350	87,342,810
Bakeries.....	2,631	37,192	117,377,330	166,595,750	188,758,767	366,131,412
Confectionery manufacturers....	220	9,614	28,204,538	71,990,802	70,432,168	142,963,856
Sugar refineries.....	12	3,213	13,837,981	91,132,274	43,988,147	130,405,175
Vegetable oil mills.....	11	555	2,562,389	9,377,497	9,156,867	59,242,353
Miscellaneous food manufacturers	17	893	2,475,624	9,255,474	8,360,038	17,801,834
Beverage Manufacturers—	303	10,796	41,262,004	238,318,426	141,190,219	382,750,240
Soft drink manufacturers.....	514	7,809	29,345,589	49,525,952	111,740,949	165,376,045
Distilleries.....	21	4,582	20,978,205	55,536,334	116,748,150	172,309,328
Breweries.....	54	7,864	42,105,016	58,050,386	190,256,453	251,500,708
Wineries.....	19	538	2,528,180	8,429,450	9,512,909	17,571,382
Tobacco Products	40	9,731	38,354,483	216,354,230	117,789,866	334,413,635
Leaf tobacco processing.....	16	1,871	5,446,304	104,164,607	12,038,620	116,525,646
Tobacco products manufacturers	24	7,860	32,908,179	112,189,623	105,751,246	217,887,989
Rubber	92	20,311	84,525,519	152,660,298	168,965,070	323,053,118
Rubber footwear manufacturers....	7	4,276	12,843,178	13,403,560	19,957,502	33,242,827
Rubber tire and tube manufac- turers.....	9	8,073	38,530,649	89,685,657	85,282,923	175,188,613
Other rubber.....	76	7,962	33,151,692	49,571,081	62,724,645	114,621,678
Leather	608	30,424	83,918,955	134,436,607	130,595,924	268,114,309
Leather tanneries.....	48	3,233	12,074,430	29,424,923	18,062,188	48,809,537
Shoe factories.....	249	20,232	53,265,012	77,110,209	82,157,511	160,543,462
Leather glove factories.....	60	1,442	3,577,561	5,196,794	5,744,850	10,978,639
Leather belting manufacturers....	11	105	389,942	376,403	535,438	913,514
Boot and shoe findings manufac- turers.....	42	1,248	3,543,343	6,767,649	5,647,007	12,477,760
Miscellaneous leather products manufacturers.....	198	4,164	11,068,667	15,560,629	18,448,930	34,391,397
Textiles	924	61,756	206,500,220	430,561,782	368,610,350	810,522,933
Cotton yarn and cloth mills.....	42	16,841	53,287,430	121,345,889	86,150,102	209,502,785
Wool yarn mills.....	33	2,700	8,254,667	19,200,126	13,469,434	32,731,842
Wool cloth mills.....	58	6,060	19,144,484	34,125,300	31,524,261	66,791,224
Synthetic textile mills.....	51	15,101	55,955,431	102,275,676	116,252,541	221,937,240
Fibre preparing mills.....	32	819	2,097,305	10,782,254	6,034,674	16,915,145
Thread mills.....	15	1,110	3,454,959	7,327,005	6,374,243	13,481,527
Cordage and twine industry.....	13	961	3,635,142	9,476,734	6,353,748	16,390,845
Narrow fabric mills.....	48	2,011	5,918,199	9,858,502	10,087,209	20,046,071
Pressed and punched felt mills....	10	460	1,761,880	3,338,911	3,281,111	6,806,557
Carpet, mat and rug industry....	16	1,745	5,932,415	14,201,827	10,483,382	25,168,880
Textile dyeing and finishing plants.....	54	1,927	6,781,240	4,836,400	11,599,776	17,188,447
Linoleum and coated fabrics industry.....	19	2,563	10,966,165	20,333,257	17,500,079	39,061,308

1 Reported on a production basis.

9.—Principal Statistics of Individual Manufacturing Industries, 1960—continued

Group and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Textiles—concluded						
Canvas products industry.....	136	1,718	4,755,479	9,521,928	8,246,332	17,444,947
Cotton and jute bag industry....	31	1,046	3,162,163	20,033,731	6,636,805	26,817,737
Miscellaneous Textiles—						
Automobile fabric accessory manufacturers.....	28	827	2,741,550	8,081,894	4,179,395	12,531,039
Embroidery, pleating, hem- stitching manufacturers.....	135	1,441	3,884,400	2,233,181	6,140,229	8,454,407
Miscellaneous textiles <i>n.e.s.</i> industry.....	203	4,426	13,767,311	33,589,167	24,297,029	59,252,932
Knitting Mills.....	362	20,765	51,050,926	104,055,566	93,359,607	198,159,994
Hosiery mills.....	169	8,415	22,404,618	31,944,315	40,270,224	73,242,122
Other knitting mills.....	193	12,350	31,646,308	72,141,251	53,089,383	124,917,872
Clothing.....	2,391	86,875	227,213,881	402,732,198	369,365,614	770,468,489
Custom Tailoring Shops (1961 Survey)—						
Men's clothing factories.....	509	28,737	76,189,722	144,683,906	117,745,549	261,278,917
Men's clothing contractors....	141	5,129	10,174,934	1,171,222	12,454,350	13,823,971
Women's clothing factories.....	648	26,011	73,125,069	141,660,936	127,599,613	268,524,347
Women's clothing contractors....	169	4,557	8,008,963	900,207	9,959,706	10,993,650
Children's clothing industry....	186	8,424	19,129,940	41,811,476	31,828,774	73,835,896
Fur goods industry.....	491	4,119	14,845,502	36,724,449	24,437,280	60,985,273
Hat and cap industry.....	130	4,003	11,056,561	13,005,108	40,270,224	73,242,122
Foundation garment industry....	42	4,011	9,945,980	14,502,000	20,582,282	34,715,652
Fabric glove manufacturers.....	13	678	1,434,192	2,261,006	2,593,011	4,801,427
Miscellaneous clothing <i>n.e.s.</i> in- dustry.....	62	1,206	3,303,018	6,011,888	5,152,380	11,183,152
Wood.....	7,490	85,262	283,521,417	598,131,213	454,978,488	1,068,041,527
Sawmills (incl. shingle mills)....	5,312	46,607	153,084,558	329,575,802	252,150,944	591,607,758 ¹
Veneer and plywood mills.....	77	10,964	41,492,029	75,461,850	59,979,086	135,494,132
Sash and door and planing mills (excl. hardwood flooring).....	1,563	16,818	55,227,749	138,765,161	86,613,365	229,834,534
Hardwood flooring.....	24	1,267	3,877,844	7,711,174	5,597,766	13,489,720
Wooden box factories.....	166	3,074	8,748,811	11,542,719	13,251,050	25,171,658
Coffin and casket industry.....	66	1,357	4,123,576	4,944,347	6,651,079	11,749,903
Miscellaneous Wood—						
Wood handles and turning.....	61	1,347	3,680,507	4,856,348	5,433,433	10,252,700
Woodenware.....	26	592	1,419,200	1,933,998	2,117,584	4,034,269
Cooperage.....	43	472	1,440,154	3,380,531	1,780,319	5,258,997
Miscellaneous wood industries <i>n.e.s.</i> (incl. wood preserva- tion).....	152	2,764	10,425,989	19,959,283	21,403,862	41,147,856
Furniture and Fixtures.....	2,099	31,206	112,660,387	166,268,761	178,493,573	347,980,824
Household furniture industry....	1,574	20,529	65,659,959	95,113,121	100,811,757	196,836,913
Office furniture industry.....	56	3,038	10,933,093	11,841,196	17,151,394	30,053,750
Other furniture industries.....	403	9,440	32,801,746	52,768,561	54,671,051	108,585,918
Electric lamp and shade industry	66	1,199	3,265,589	6,545,883	5,859,371	12,504,243
Paper and Allied Industries.....	581	95,433	458,621,265	979,872,639	1,035,904,372	2,128,107,197
Pulp and paper mills.....	128	65,642	344,409,846	656,877,464	811,546,844	1,578,727,108
Asphalt roofing manufacturers....	20	1,924	8,478,305	21,221,644	16,009,793	37,930,560
Folding box and set-up box manu- facturers.....	142	8,115	29,105,573	65,986,826	49,483,347	115,377,917
Corrugated box manufacturers....	39	6,521	26,433,573	89,872,778	50,057,592	141,052,151
Paper bag manufacturers.....	59	3,531	11,869,841	48,772,104	27,453,038	76,491,077
Paper converters, <i>n.e.s.</i>	193	9,700	38,327,127	97,141,823	81,353,758	178,528,384
Printing, Publishing and Allied Industries.....	3,462	73,694	322,788,021	274,846,086	586,142,192	865,930,729
Commercial Printing—						
Printing and bookbinding.....	1,765	23,489	93,427,171	87,656,862	157,044,683	245,848,212
Lithographing.....	250	8,677	38,890,122	49,693,006	64,042,097	114,504,302
Engraving, Stereotyping and Allied Industries—						
Engraving and duplicate plates	160	4,241	22,466,273	8,927,861	33,197,721	42,492,367
Trade composition or typeset- ting.....	56	1,134	6,050,288	634,180	8,639,009	9,315,527
Publishing only.....	479	4,717	18,912,575	33,673,370	60,199,711	93,893,874
Printing and publishing.....	752	31,436	143,041,591	94,260,807	263,058,971	359,876,447

¹ Reported on a production basis.

9.—Principal Statistics of Individual Manufacturing Industries, 1960—continued

Group and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Primary Metal	418	90,025	454,582,536	1,614,141,723	1,031,239,152	2,742,520,031
Iron and steel mills.....	48	36,472	193,892,738	375,594,026	359,428,665	756,456,392
Steel pipe and tube mills.....	15	3,129	16,192,477	86,531,345	32,733,055	120,860,404
Iron foundries.....	141	8,677	35,954,414	40,446,563	55,330,014	97,685,520
Smelting and refining.....	23	29,708	153,682,338	924,379,442	507,530,017	1,495,177,517 ¹
Aluminum rolling, casting and extruding.....	44	5,916	27,441,118	63,889,589	27,411,031	96,379,717
Copper and alloy rolling, casting and extruding.....	70	3,487	16,469,778	86,529,105	29,617,452	118,899,578
Metal rolling, casting and extruding, <i>n.e.s.</i>	77	2,636	10,949,673	36,771,653	19,188,918	57,060,903
Metal Fabricating (except machinery and transportation equipment)	2,896	98,505	423,738,381	662,679,077	750,664,816	1,432,904,803
Boiler and plate works.....	71	4,709	20,745,095	33,137,842	33,741,357	68,503,973
Fabricated structural metal industry.....	73	15,195	73,032,191	110,143,733	120,730,315	233,165,690 ¹
Ornamental and architectural metal industry.....	514	8,775	34,922,715	52,987,173	60,424,451	115,176,064
Metal stamping, pressing and coating industry.....	519	20,808	92,585,517	171,009,071	173,714,858	349,079,849
Wire and wire products manufacturers.....	200	11,905	53,924,419	110,395,449	87,736,927	200,112,321
Hardware, tool and cutlery manufacturers.....	312	8,794	36,641,665	34,109,569	69,815,003	105,436,671
Heating equipment manufacturers.....	118	5,421	22,628,724	38,236,602	43,243,974	83,198,471
Machine shops.....	768	8,116	31,938,600	24,579,351	50,539,470	75,935,435
Miscellaneous metal fabricating industries.....	321	14,782	62,319,455	88,080,287	110,718,461	202,296,329
Machinery (except electrical machinery)	533	43,495	199,427,682	299,071,885	329,763,223	642,458,967
Agricultural implement industry.....	69	10,929	52,775,449	78,433,294	61,773,292	152,126,862
Miscellaneous machinery and equipment manufacturers.....	409	27,606	123,792,123	174,357,409	217,656,790	393,932,002
Commercial refrigeration and air conditioning equipment manufacturers.....	33	1,601	6,746,295	9,723,870	13,062,361	22,633,244
Office and store machinery manufacturers.....	22	3,259	16,113,815	36,557,312	37,270,780	73,766,859
Transportation Equipment	687	109,417	518,352,786	1,096,084,723	871,734,759	2,000,689,246
Aircraft and parts manufacturers.....	83	27,056	131,542,701	114,521,392	188,850,776	308,190,203 ¹
Motor vehicle manufacturers.....	18	27,683	149,748,166	619,018,864	338,340,452	970,329,667
Truck body and trailer manufacturers.....	114	3,606	14,370,145	26,737,608	24,481,064	52,402,823
Motor vehicle parts and accessories manufacturers.....	119	15,402	73,646,028	151,093,080	129,232,815	286,871,543
Railway rolling-stock industry.....	29	18,256	77,069,849	124,501,102	82,131,698	212,076,967 ¹
Shipbuilding and repair.....	66	15,061	64,472,121	49,890,117	96,417,417	148,295,478 ¹
Boatbuilding and repair.....	243	1,746	5,413,153	6,374,309	7,320,024	13,739,432
Miscellaneous vehicle manufacturers.....	15	607	2,090,623	3,948,251	4,960,513	8,733,133
Electrical Products	548	78,648	348,588,227	545,995,616	624,613,582	1,175,966,233
Small electrical appliances, manufacturers of.....	66	3,784	15,048,761	26,047,228	34,214,740	61,620,000
Major appliances (electric and non-electric), manufacturers of.....	44	11,227	47,936,208	108,529,062	88,965,128	204,087,643
Household radio and television receivers, manufacturers of.....	23	5,847	24,463,760	67,158,526	36,896,045	104,437,855
Communications equipment manufacturers.....	132	22,981	102,265,349	81,346,425	164,732,956	235,446,645
Electrical industrial equipment, manufacturers of.....	100	17,079	84,148,231	84,892,375	148,467,956	236,909,556
Battery manufacturers.....	28	2,114	9,058,580	21,534,007	16,769,440	39,384,681
Electric wire and cable, manufacturers of.....	28	6,715	31,871,712	95,020,954	62,763,991	160,771,053
Miscellaneous electrical products, manufacturers of.....	127	8,901	33,795,626	61,467,039	71,803,326	133,308,800

¹ Reported on a production basis.

9.—Principal Statistics of Individual Manufacturing Industries, 1960--continued

Group and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Non-metallic Mineral Products..	1,331	41,606	173,438,100	230,750,338	373,070,496	647,461,580
Cement manufacturers.....	20	3,398	17,122,742	11,294,254	69,616,378	96,769,665
Lime manufacturers.....	25	953	3,960,864	1,010,426	8,015,022	11,874,520
Gypsum products manufacturers	14	1,522	6,517,999	14,006,834	15,163,986	30,364,799
Concrete products manufacturers	645	8,709	32,216,905	42,535,445	61,040,202	107,444,952
Ready-mix concrete manufactur- ers.....	136	4,200	18,597,733	58,408,165	39,566,483	101,200,299
Clay Products Manufacturers—						
Clay products (from domestic clays)	113	3,991	15,234,205	1,284,138	31,944,022	38,033,788
Clay products (from imported clays)	27	1,771	7,262,317	5,942,170	14,991,838	21,524,752
Refractories manufacturers.....	16	633	2,716,026	8,569,617	9,397,193	18,555,636
Stone products manufacturers.....	142	1,251	4,358,269	4,679,709	7,201,534	12,120,594
Mineral wool manufacturers.....	12	1,067	4,903,049	5,984,247	11,152,582	17,739,972
Asbestos products manufacturers	17	2,086	9,211,568	12,769,299	15,839,727	29,429,028
Glass manufacturers.....	12	6,571	26,558,555	21,687,153	37,854,382	62,553,640
Glass products manufacturers.....	97	2,443	10,152,978	18,561,313	22,991,144	41,988,923
Abrasives manufacturers.....	20	2,519	12,513,599	19,329,265	23,955,964	48,568,969
Other non-metallic mineral prod- ucts.....	35	492	2,111,291	4,688,303	4,340,039	9,292,043
Petroleum and Coal Products...	96	14,513	85,446,911	873,633,610	279,705,068	1,197,967,758
Petroleum Refineries—						
Petroleum refining.....	44	13,400	80,051,281	841,631,957	263,252,142	1,148,943,021 ¹
Lubricating oils and greases, manufacturers of.....	16	286	1,841,104	19,276,830	7,401,067	26,102,233
Other petroleum and coal prod- ucts.....	36	727	3,554,526	12,724,823	9,051,859	22,922,504
Chemicals and Chemical Products.....	1,143	54,269	253,231,119	582,813,034	747,753,234	1,373,466,548
Explosives and ammunition manu- facturers.....	12	5,249	23,793,262	27,506,012	39,357,600	67,123,575
Mixed fertilizers, manufacturers of.....	42	1,194	5,615,995	32,550,224	12,798,517	45,859,990
Plastics and synthetic resins, manufacturers of.....	33	4,000	21,270,993	68,630,527	56,943,380	128,657,676
Pharmaceuticals and medicines, manufacturers of.....	198	7,994	31,898,479	45,550,429	118,517,168	164,896,766
Paint and varnish manufacturers	139	6,164	27,666,977	74,264,463	72,544,033	147,475,788
Soap and cleaning compounds, manufacturers of.....	134	3,983	19,025,404	56,410,029	80,518,573	139,278,813
Toilet preparations, manufactur- ers of.....	84	2,636	9,318,045	22,671,222	44,458,753	67,200,300
Industrial chemicals, manufactur- ers of.....	131	16,371	86,442,647	177,272,303	239,141,280	449,982,770
Printing inks, manufacturers of.....	33	940	4,241,854	7,610,557	9,700,110	17,400,874
Other chemical industries.....	337	5,738	23,957,463	70,377,258	73,713,820	145,589,996
Miscellaneous Manufacturing Industries.....	2,493	47,083	172,219,763	237,597,396	300,043,449	538,935,510
Scientific and Professional Equipment Manufacturers—						
Instrument and related prod- ucts.....	87	7,353	33,619,637	48,158,927	55,796,752	103,375,018
Clock and watch manufactur- ers.....	34	1,050	4,002,357	8,173,736	8,318,228	16,128,200
Orthopaedic and surgical appli- ance manufacturers.....	37	346	1,094,125	892,087	1,557,395	2,475,194
Optometric goods manufactur- ers.....	44	1,098	3,602,506	3,127,872	3,734,097	6,890,592
Dental laboratories.....	499	1,720	6,736,498	2,690,692	9,338,549	12,114,820
Jewellery and silverware manu- facturers.....	228	4,261	15,324,748	29,897,196	25,884,225	55,680,326
Broom, brush and mop industry	100	2,111	6,492,319	8,580,533	12,007,348	20,802,638
Venetian blind manufacturers.....	77	410	1,204,611	1,977,077	1,971,782	4,042,839
Plastic fabricators, n.e.s.....	250	6,287	21,062,234	47,121,433	41,035,902	87,989,559
Sporting goods industry.....	109	3,453	12,362,571	16,894,270	20,970,740	37,882,494
Toys and games industry.....	72	2,799	7,201,304	13,000,220	12,443,711	25,379,229
Fur-dressing and dyeing industry	17	989	3,641,875	1,014,656	5,686,988	6,804,986
Signs and displays industry.....	390	4,489	18,479,770	14,650,483	31,582,706	46,987,808

¹ Reported on a production basis.

9.—Principal Statistics of Individual Manufacturing Industries, 1960—concluded

Group and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Miscellaneous Manufacturing Industries—concluded						
Button, buckle and fastener industry.....	45	1,518	4,861,664	5,992,308	8,609,715	14,126,164
Candle manufacturers.....	19	245	837,180	1,189,529	1,700,343	3,002,515
Hair goods manufacturers.....	13	117	389,389	404,146	609,107	1,044,055
Artificial flowers and feathers manufacturers.....	35	493	1,297,893	1,326,952	2,116,332	3,541,178
Model and pattern manufacturers	92	853	3,977,492	1,632,224	7,012,901	8,652,609
Musical instruments and sound recording industry.....	29	1,512	5,736,291	5,936,200	13,509,677	19,689,082
Typewriter supplies manufactur- ers.....	10	424	1,590,504	3,646,747	3,003,481	6,626,260
Fountain pen and pencil manufac- turers.....	20	1,089	3,679,675	5,897,714	7,651,336	13,921,698
Smokers' supplies manufacturers	13	161	517,836	964,933	1,113,060	2,158,617
Stamp and stencil (rubber and metal) manufacturers.....	70	1,006	3,939,299	2,430,428	5,531,845	8,058,390
Statuary, art goods, regalia and novelty manufacturers.....	95	815	2,277,651	2,249,183	3,288,268	5,656,676
Umbrella manufacturers.....	8	114	330,781	539,192	528,980	1,063,526
Artificial ice manufacturers.....	46	348	1,249,117	225,648	2,033,847	2,624,447
Other miscellaneous industries..	54	2,012	6,710,436	8,983,010	13,006,134	22,216,590
Totals, All Industries.....	36,682	1,294,629	5,207,167,393	12,720,947,113	10,517,332,701	23,747,457,053

10.—Principal Statistics of the Forty Leading Manufacturing Industries, ranked according to the Selling Value of Factory Shipments, 1960

NOTE.—Based on revised Standard Industrial Classification (see text on pp. 623-624).

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
1 Pulp and paper mills.....	128	65,642	344,409,846	656,877,464	811,546,844	1,578,727,108
2 Smelting and refining.....	23	29,708	153,682,338	924,379,442	507,530,017	1,495,177,517 ¹
3 Petroleum refining.....	44	13,400	80,051,281	841,631,957	263,252,142	1,148,943,021 ¹
4 Slaughtering and meat packing plants.....	210	25,946	115,044,705	845,487,570	209,473,886	1,058,439,979
5 Motor vehicle manufacturers..	18	27,683	149,748,166	619,018,864	338,340,452	970,329,667
6 Iron and steel mills.....	48	36,472	193,892,738	375,594,026	359,428,665	756,456,392
7 Sawmills (incl. shingle mills)...	5,312	46,607	153,084,558	329,575,802	252,150,944	591,607,758 ¹
8 Industrial chemicals, manufac- turers of.....	131	16,371	86,442,647	177,272,303	239,141,280	449,982,770
9 Pasteurizing plants.....	778	21,831	83,930,872	256,831,880	136,109,419	401,743,284
10 Miscellaneous machinery and equipment manufacturers.....	409	27,606	123,792,123	174,357,409	217,656,790	393,932,002
11 Miscellaneous food manufac- turers.....	303	10,796	41,262,004	238,318,426	141,190,219	382,750,240
12 Bakeries.....	2,631	37,192	117,377,330	166,595,750	188,758,767	366,131,412
13 Printing and publishing.....	752	31,436	143,041,591	94,260,807	263,058,971	359,876,447
14 Metal stamping, pressing and coating industry.....	519	20,808	92,585,517	171,009,071	173,714,858	349,079,849
15 Fruit and vegetable canners and preservers.....	361	16,608	48,526,369	191,657,764	122,374,398	313,175,773
16 Aircraft and parts manufacturers	83	27,056	131,542,701	114,521,392	188,850,776	308,190,203 ¹
17 Butter and cheese plants.....	961	7,558	21,699,798	251,919,770	41,688,281	298,889,256
18 Motor vehicle parts and acces- sories manufacturers.....	119	15,402	73,646,028	151,093,080	129,232,815	286,871,543
19 Feed manufacturers.....	1,406	8,065	26,020,624	215,800,261	63,871,883	284,574,959
20 Women's clothing factories.....	648	26,011	73,125,069	141,660,936	127,599,613	268,524,347

¹ Reported on a production basis.

10.—Principal Statistics of the Forty Leading Manufacturing Industries, ranked according to the Selling Value of Factory Shipments, 1960—concluded

Industry	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
21 Men's clothing factories.....	509	28,737	76,189,722	144,683,906	117,745,549	261,278,917
22 Breweries.....	54	7,864	42,105,016	58,050,386	190,256,543	251,500,708
23 Printing and bookbinding.....	1,765	23,489	93,427,171	87,656,862	157,004,683	245,848,212
24 Electrical industrial equipment, manufacturers of.....	100	17,079	84,148,231	84,892,375	148,467,956	236,909,556
25 Communications equipment manufacturers.....	132	22,981	102,265,349	81,346,425	164,732,956	235,446,645
26 Fabricated structural metal industry.....	73	15,195	73,032,191	110,143,733	120,730,315	233,165,690 ¹
27 Sash and door and planing mills (excl. hardwood flooring)....	1,563	16,818	55,227,749	138,765,161	86,613,365	229,834,534
28 Flour mills.....	58	4,173	17,416,164	174,270,710	48,610,433	224,657,381
29 Synthetic textile mills.....	51	15,101	55,955,431	102,275,676	116,252,541	221,937,240
30 Tobacco products manufacturers	24	7,860	32,908,179	112,189,623	105,751,246	217,887,989
31 Railway rolling-stock industry	29	18,256	77,069,849	124,501,102	82,131,698	212,076,967 ¹
32 Cotton yarn and cloth mills.....	42	16,841	53,287,430	121,345,889	86,150,102	209,602,785
33 Major appliances (electric and non-electric), manufacturers of	44	11,227	47,936,208	108,529,062	88,965,128	204,087,643
34 Miscellaneous metal fabricating industries.....	321	14,782	62,319,455	88,080,287	110,718,461	202,296,329
35 Wire and wire products manufacturers.....	200	11,905	53,924,419	110,395,449	87,736,927	200,112,321
36 Household furniture industry...	1,574	20,529	65,659,959	95,113,121	100,811,757	196,836,913
37 Paper converters, n.e.s.....	193	9,700	38,327,127	97,141,823	81,353,758	178,528,384
38 Rubber tire and tube manufacturers.....	9	8,073	38,530,649	89,685,657	85,282,923	175,188,613
39 Distilleries.....	21	4,582	20,978,205	55,836,334	116,748,150	172,309,328
40 Fish products.....	402	13,357	29,717,560	103,863,226	53,004,983	169,529,913
Totals, Leading Industries, 1960.....	22,048	800,747	3,373,332,369	9,026,630,781	6,924,040,494	16,342,339,595
Totals, All Industries, 1960..	36,682	1,294,629	5,207,167,393	12,720,947,113	10,517,332,701	23,747,457,083

¹Reported on a production basis.

11.—Quantity and Value of the Principal Commodities Produced or Shipped by the Manufacturing Industries 1959

NOTE.—Old classification; 1960 figures on the revised Standard Industrial Classification were not available at the time of going to press—see text on pp. 623-624). All values in this table are for factory shipments except those marked with an asterisk, which are for gross value of products.

Group and Commodity	Unit of Measure	1959	
		Quantity	Value
Foods—			\$
Biscuits, all kinds.....	lb.	252,139,927	75,254,225
Bread.....	ton	826,738	206,597,957
Butter, factory made.....	lb.	330,684,203	210,726,341
Cheese, factory made.....	"	193,893,028	71,401,696
Coffee, instant.....	"	10,062,123	23,395,489
Coffee and tea, blended, roasted and packed.....	"	126,224,660	102,767,381
Confectionery, all kinds.....	"	220,455,434	93,122,511
Cream, sold by dairy factories.....	...	...	48,811,207
Feed, chopped grain.....	ton	499,933	26,896,798
Feeds, stock and poultry, prepared.....	"	2,886,609	244,912,850
Fish, canned and otherwise prepared.....	...	...	80,889,000
Flour, wheat.....	cwt.	40,626,516	171,427,097
Fruits and vegetables, canned.....	lb.	626,932,637	86,444,777
Fruits and vegetables, frozen.....	"	73,005,017	13,283,811
Ice cream, factory made.....	gal.	38,236,652	63,503,437
Jams, jellies and marmalades.....	lb.	113,011,952	23,324,738
Lard.....	"	143,132,536	14,668,582
Margarine and margarine substitutes.....	"	167,134,426	36,771,022
Meats, canned, including poultry, pastes, etc.....	"	185,782,523	99,559,841
Meats, cooked, including sausage, wieners, etc.....	"	314,018,819	130,773,177
Meats, cured and smoked.....	"	276,166,962	136,512,808

11.—Quantity and Value of the Principal Commodities Produced or Shipped by the Manufacturing Industries 1959—continued

Group and Commodity	Unit of Measure	1959	
		Quantity	Value
Foods—concluded			
Meats, sold fresh and frozen, including poultry.....	lb.	1,727,115,159	654,047,815
Milk, sold by dairy factories.....	gal.	367,104,710	292,946,091
Milk, evaporated and condensed.....	lb.	330,541,375	42,266,837
Pickles, relishes and catsup.....	...	...	31,014,267
Pies, cakes and pastry.....	...	...	91,940,643
Powders, edible (custard, jelly, milk, etc.).....	...	...	59,175,267
Shortening.....	lb.	165,793,957	36,507,559
Soups, canned (except infants').....	"	267,196,927	47,180,551
Sugar, granulated (cane and beet).....	"	1,419,715,164	101,294,866
Beverages—			
Beer, ale, stout and porter (sales).....	gal.	235,183,805	388,131,494
Beverage spirits sold (net sales).....	pt. gal.	16,173,426	132,957,598
Carbonated beverages.....	gal.	157,462,782	142,735,856
Wine sold.....	Imp. gal.	6,519,347	16,864,131
Tobacco and Tobacco Products—			
Cigarettes.....	'000	34,273,043	493,910,645
Cigars.....	"	313,472	23,014,368
Tobacco, chewing, smoking and snuff.....	lb.	23,995,631	63,498,860
Tobacco, raw leaf, processed.....	"	177,145,084	112,203,324*
Textiles—			
Bags, cotton and jute.....	No.	128,659,584	23,075,118
Blankets.....	...	...	14,069,037
Carpets, mats and rugs.....	...	...	31,113,003
Cotton fabrics.....	...	...	110,402,879
Synthetic woven fabrics, all types.....	yd.	90,917,327	64,226,988
Tire fabrics.....	lb.	29,043,808	27,174,826
Twine and cordage.....	...	...	15,012,813
Woven fabrics, wool or containing wool.....	...	...	42,575,110
Yarns, cotton, rayon, wool, etc. (for sale).....	...	...	164,758,984
Clothing—			
Coats and overcoats, cloth, men's and youths'.....	No.	504,631	14,782,197
Coats, wool, women's and misses'.....	"	1,422,975	36,045,150
Coats, fur, women's (factory made).....	"	215,028	49,657,776
Short coats (including windbreakers, mackinaws, parkas, leather coats, etc.).....	doz.	569,528	38,406,178
Dresses, women's and misses'.....	No.	12,632,566	90,929,384
Footwear, leather.....	pr.	37,740,294	146,070,192
Footwear, rubber.....	"	9,948,946	24,952,284
Gloves and mittens, all kinds.....	doz. pr.	1,309,000	10,040,485
Hats and caps, men's.....	doz.	672,856	11,511,407
Hats, women's and children's.....	"	430,754	13,822,540
Hosiery, all kinds.....	doz. pr.	11,805,628	65,909,986
Shirts, fine, work and sport.....	doz.	2,553,163	56,691,979
Sport suits, slacks and other sport clothing, <i>n.e.s.</i>.....	...	...	28,708,216
Suits, men's and youths' fine woollen.....	No.	1,675,491	57,212,085
Underwear.....	...	...	55,565,126
Wood Products—			
Boxes, wooden.....	...	...	9,757,467
Lumber, planed.....	M ft.b.m.	1,351,909	98,423,579
Lumber, sawn.....	"	7,598,114	490,852,869*
Pulp, wood, made for sale.....	ton	1,933,932	233,274,385
Sash, doors and other mill work.....	...	...	79,424,970
Paper Products—			
Bags, paper.....	...	...	62,350,807
Boxes, paper.....	...	...	221,543,640
Paper boards, all types (basic).....	ton	1,041,000	147,067,000*
Paper, book and writing (basic).....	"	382,000	101,928,000*
Paper, newsprint (basic).....	"	6,351,000	730,455,000*
Paper, wrapping (basic).....	"	330,000	71,318,000*
Printing, Publishing and Allied Industries—			
Books and catalogues, printed and bound.....	...	...	40,599,424
Other advertising matter, printed.....	...	...	56,998,721
Periodicals printed for publishers.....	...	...	29,823,956
Periodicals Printed by Publishers—			
Subscriptions and sales.....	...	...	79,445,534
Gross revenue from advertising.....	...	...	223,088,250
Sheet forms, commercial, legal, etc., printed.....	...	...	143,222,466

11.—Quantity and Value of the Principal Commodities Produced or Shipped by the Manufacturing Industries 1959—concluded

Group and Commodity	Unit of Measure	1959	
		Quantity	Value
\$			
Iron and Steel Products—			
Bars, iron and steel, hot rolled (sold).....	ton	795,274	116,993,886
Boilers, heating and power.....	No.	20,354	34,414,475
Castings, grey iron, made for sale.....	...	...	41,309,356
Farm implements and parts.....	...	...	148,537,360
Forgings, steel and other.....	...	...	29,164,520
Hardware, builders', pole line and other.....	...	...	52,641,000
Machinery, industrial, household, office and store, and parts.....	...	...	692,737,000
Pig iron (sold).....	ton	662,341	36,280,610
Pipes, tubing and fittings, iron and steel.....	...	...	181,926,000
Rolled iron and steel forms, semi-finished, sold.....	net ton	325,993	32,821,954
Sheets, bars and other cold-rolled products, sold.....	"	1,241,333	223,534,829
Steel ingots and castings, sold.....	"	298,249	59,005,124
Steel shapes erected, buildings, bridges, etc.....	"	464,598	177,528,209
Steel shapes, structural, made in primary mills.....	"	265,194	34,528,656
Stoves, coal, wood, electric and gas.....	...	...	57,516,208
Tools and implements, hand, all kinds and parts.....	...	...	39,039,879
Wire, wire rope and cable, steel.....	...	...	57,974,526
Transportation Equipment—			
Aircraft, completed in year.....	...	...	114,574,066*
Automobiles, commercial.....	No.	66,983	163,483,274
Automobiles, passenger.....	"	296,943	611,317,642
Automobile parts and accessories, including tires.....	...	...	529,823,000
Buses.....	No.	288	7,022,866
Cars, railway, complete, freight and passenger.....	"	3,585	40,370,183*
Locomotives, diesel-electric, new.....	"	375	66,573,422*
Ships and ship repairs.....	...	...	224,964,506*
Non-ferrous Metal Products—			
Jewellery.....	...	...	23,447,193
Kitchenware, aluminum.....	...	...	6,500,544
Silverware.....	...	...	7,278,996
Smelter and refinery products.....	...	...	1,307,996,841*
Electrical Apparatus and Supplies—			
Batteries, electric, storage.....	...	...	28,019,953
Radio receiving sets, complete.....	No.	713,309	24,485,277
Refrigerators, household, mechanical.....	"	256,778	44,548,660
Television sets.....	"	402,348	64,524,130
Wires and cables, electric.....	...	...	150,573,693
Non-metallic Mineral Products—			
Abrasives, artificial.....	ton	238,567	28,074,452
Coke, gas-house.....	"	4,089,833	65,148,555*
Concrete, ready-mixed.....	cu. yd.	8,179,831	99,926,979
Gas, manufactured and natural, sold.....	Mcf.	284,721,088	162,029,267*
Glass, pressed and blown (bottles, sealers, ovenware, etc.).....	...	...	62,393,205
Chemicals and Allied Products—			
Calcium and sodium compounds.....	...	...	52,175,390
Fertilizers, mixed.....	ton	757,000	41,498,000
Medicinal and pharmaceutical preparations.....	...	...	154,324,000
Paints, enamel and varnishes.....	...	...	140,620,000
Synthetic resins.....	...	...	73,827,000
Soaps and synthetic detergents.....	...	...	95,350,000
Toilet preparations.....	...	...	68,926,562
Miscellaneous—			
Bags, hand and hand luggage.....	...	...	15,815,387
Brooms and household brushes.....	...	...	4,943,328
Cans, metal, for food.....	...	...	78,877,549
Furniture, wood and metal.....	...	...	187,562,196
Gasoline.....	bbl.	98,055,040	509,780,585*
Leather, shoe.....	...	...	44,700,004
Mattresses.....	...	...	25,759,387
Mops, floor.....	...	...	2,856,294
Oil, fuel (made for sale).....	bbl.	117,015,094	412,934,724*
Pianos, organs and parts.....	...	...	6,023,254
Scientific and professional equipment.....	...	...	82,043,314
Sporting goods.....	...	...	30,638,959
Springs, bed and other furniture.....	...	...	16,156,308
Toys and games.....	...	...	31,267,483

Subsection 2.—Manufactures classified by Origin of Materials

The distinction made between farm materials of Canadian and foreign origin is based on whether the materials are indigenous to Canada rather than on their actual source. Thus, the industries included in the foreign origin classes are those depending upon materials that cannot be grown in Canada, such as tea, coffee, spices, cane sugar, rice, rubber, cotton, etc. Industries included in the Canadian origin classes may, however, be using large quantities of imported materials. Figures for 1959 are the latest available for this classification at the time of going to press.

12.—Principal Statistics of Manufacturing Industries classified according to Origin of Materials Used, by Main Group, 1959

Origin of Materials Used	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Farm origin.....	9,563	313,153	1,041,320,911	3,832,287,502	2,316,259,447	6,238,814,601
Mineral origin.....	7,406	541,628	2,446,703,638	5,887,525,610	4,912,315,673	11,008,279,085
Forest origin.....	14,569	287,802	1,104,870,213	1,955,730,258	2,146,100,754	4,235,438,303
Marine origin.....	409	13,016	28,016,374	109,065,708	54,913,312	169,021,236
Wildlife origin.....	495	5,254	18,775,649	39,456,777	30,379,491	69,127,080
Mixed origin.....	3,751	143,103	433,386,921	728,134,688	860,994,204	1,590,921,176
Grand Totals.....	36,193	1,303,956	5,073,073,706	12,552,200,543	10,320,962,881	23,311,601,481
Farm Origin Group—						
From field crops.....	6,032	174,547	597,339,171	1,938,815,106	1,548,649,420	3,549,059,817
From animal husbandry	3,531	138,606	443,981,740	1,893,472,396	767,610,027	2,689,754,784
Totals, Farm Origin...	9,563	313,153	1,041,320,911	3,832,287,502	2,316,259,447	6,238,814,601
Canadian origin.....	8,643	255,590	838,194,711	3,347,376,240	1,867,444,220	5,285,083,901
Foreign origin.....	920	57,563	203,126,200	484,911,262	448,815,227	953,730,700

Subsection 3.—Manufactures classified by Type of Ownership

Figures showing the classification of the type of ownership under which Canadian manufacturers operate are available from 1916. Although the first survey did not include the fish curing and packing industry, its inclusion in subsequent years has not materially altered the percentage distribution of individual ownership, incorporated companies, etc.

As is to be expected, the smaller establishments, regardless of the type of product manufactured, are carried on under individual ownership. In that category, industries conducted on a small scale contain a large number of establishments, the percentage decreasing as the scale of operations increases, as shown for 1959 in Table 13.

**13.—Percentage Distribution of Manufacturing Establishments, Employees and Shipments,
by Type of Ownership and Size of Establishment, 1959**

Item and Type of Ownership	Under \$25,000	\$25,000 to \$99,999	\$100,000 to \$499,999	\$500,000 or Over
	p.c.	p.c.	p.c.	p.c.
Establishments—				
Individual ownership.....	74.6	44.8	11.1	0.8
Partnerships.....	14.0	15.9	7.5	1.0
Incorporated companies.....	10.8	36.6	76.0	98.0
Co-operatives.....	0.6	2.7	5.4	2.2
Totals.....	100.0	100.0	100.0	100.0
Employees—				
Individual ownership.....	68.9	39.1	6.9	0.2
Partnerships.....	16.4	16.1	6.3	0.3
Incorporated companies.....	14.2	43.4	84.8	98.8
Co-operatives.....	0.5	1.4	2.0	0.7
Totals.....	100.0	100.0	100.0	100.0
Factory Shipments—				
Individual ownership.....	70.3	40.7	8.2	0.2
Partnerships.....	14.7	15.4	6.1	0.3
Incorporated companies.....	14.2	40.7	80.8	98.4
Co-operatives.....	0.8	3.2	4.9	1.1
Totals.....	100.0	100.0	100.0	100.0

Of the 36,193 establishments operating in 1959, 1,462 establishments in the periodical publishing industry were unclassifiable, leaving 34,731 establishments in the four categories of ownership. Individual ownership numbered 13,349 establishments, partnerships 3,731, incorporated companies 16,735 and co-operatives 916. The percentage distribution of the four categories of ownership is given in Table 14 for 1950-59.

**14. —Percentage Distribution of Establishments in Manufacturing Industries classified
by Type of Ownership, 1950-59, and by Province and Industrial Group, 1959**

Year and Province	Individual Ownership	Partner- ships	Incor- porated Companies	Co-opera- tives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
1950.....	45.6	15.0	36.3	3.1	100.0
1951.....	44.6	15.5	36.9	3.0	100.0
1952.....	44.9	15.4	36.9	2.8	100.0
1953.....	44.4	14.8	38.2	2.6	100.0
1954.....	43.6	14.3	39.5	2.6	100.0
1955.....	42.7	13.6	41.1	2.6	100.0
1956.....	41.4	12.7	43.4	2.5	100.0
1957.....	40.6	12.0	44.9	2.5	100.0
1958.....	39.2	11.1	47.1	2.6	100.0
1959.....	38.4	10.8	48.2	2.6	100.0
Province, 1959					
Newfoundland.....	52.7	26.9	20.4	1	100.0
Prince Edward Island.....	49.1	16.0	26.9	8.0	100.0
Nova Scotia.....	49.9	12.3	35.7	2.1	100.0
New Brunswick.....	49.1	9.6	39.1	2.2	100.0
Quebec.....	43.3	8.9	43.6	4.2	100.0
Ontario.....	32.4	10.8	55.1	1.7	100.0
Manitoba.....	39.5	10.3	48.6	1.6	100.0
Saskatchewan.....	49.0	12.9	32.6	5.5	100.0
Alberta.....	37.1	11.2	48.2	3.5	100.0
British Columbia.....	32.2	11.6	55.1	1.1	100.0
Yukon and Northwest Territories.....	25.0	—	75.0	—	100.0

¹ Included with incorporated companies.

14.—Percentage Distribution of Establishments in Manufacturing Industries classified by Type of Ownership, 1950-59, and by Province and Industrial Group, 1959—concluded

Industrial Group	Individual Ownership	Partnerships	Incorporated Companies	Co-operatives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
Industrial Group, 1959¹					
Foods and beverages.....	42.1	9.8	37.4	10.7	100.0
Tobacco and tobacco products.....	15.0	2.5	75.0	7.5	100.0
Rubber products.....	9.0	3.4	87.6	—	100.0
Leather products.....	25.3	7.1	67.6	—	100.0
Textiles.....	25.9	10.1	63.9	0.1	100.0
Knitting mills.....	14.4	9.4	75.9	0.3	100.0
Clothing.....	23.9	13.2	62.9	—	100.0
Wood products.....	58.5	14.3	27.1	0.1	100.0
Paper products.....	6.3	2.1	91.6	—	100.0
Printing, publishing and allied industries ²	39.2	11.7	48.7	0.4	100.0
Iron and steel products.....	21.6	8.7	69.6	0.1	100.0
Transportation equipment.....	25.1	8.2	66.7	—	100.0
Non-ferrous metal products.....	20.9	9.3	69.8	—	100.0
Electrical apparatus and supplies.....	5.9	2.0	92.1	—	100.0
Non-metallic mineral products.....	27.8	9.4	62.6	0.2	100.0
Products of petroleum and coal.....	1.8	0.9	96.4	0.9	100.0
Chemicals and allied products.....	12.9	2.9	83.6	0.6	100.0
Miscellaneous manufacturing industries.....	32.2	9.5	58.3	—	100.0

¹ Old classification (see text on pp. 623-624).
group is not included (see text on p. 636).

² Four main categories of ownership only; the non-classifiable

The establishments operating under individual ownership are not as important from the point of view of employment provided as their large numbers would indicate. According to Tables 14 and 15 these establishments, which comprise 38.4 p.c. of the number, had only 4.3 p.c. of the total employees. Partnerships accounted for 10.8 p.c. of the number of establishments and 2.2 p.c. of the total employees. Incorporated companies with 48.2 p.c. of the number of establishments had 92.6 p.c. of the employees. Co-operatives with 2.6 p.c. of the number had less than 1 p.c. of the employees.

Thus on the basis of employment provided, incorporated companies are, by a wide margin, the most important factor in the employment field. Such companies had more than 99 p.c. of the employees in the rubber, paper, transportation equipment, electrical apparatus and supplies, and petroleum and coal groups; 98 p.c. of the employees in the tobacco, non-ferrous metal products and chemicals and allied products groups; 97 p.c. in the iron and steel group; over 96 p.c. in the textiles group; 95 p.c. in non-metallic mineral products; over 94 p.c. in knitting mills; over 93 p.c. in leather products; and 92 p.c. in miscellaneous manufacturing industries. The lowest proportion was 80 p.c. in the wood products group.

15.—Percentage Distribution of Employment in the Manufacturing Industries classified by Type of Ownership, 1950-59, and by Province and Industrial Group, 1959

Year	Individual Ownership	Partnerships	Incorporated Companies	Co-operatives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
1950.....	6.3	3.9	88.8	1.0	100.0
1951.....	6.1	3.7	89.3	0.9	100.0
1952.....	5.9	3.6	89.6	0.9	100.0
1953.....	5.7	3.3	90.2	0.8	100.0
1954.....	5.4	3.3	90.5	0.8	100.0
1955.....	5.2	2.9	91.0	0.9	100.0
1956.....	4.8	2.6	91.8	0.8	100.0
1957.....	4.5	2.4	92.2	0.9	100.0
1958.....	4.4	2.3	92.4	0.9	100.0
1959.....	4.3	2.2	92.6	0.9	100.0

15.—Percentage Distribution of Employment in the Manufacturing Industries classified by Type of Ownership, 1950-59, and by Province and Industrial Group, 1959—concluded

Year, Province and Industrial Group	Individual Ownership	Partnerships	Incorporated Companies	Co-operatives	Total
	p.c.	p.c.	p.c.	p.c.	p.c.
Province, 1959					
Newfoundland.....	5.8	4.3	89.9	1	100.0
Prince Edward Island.....	16.7	8.3	65.4	9.6	100.0
Nova Scotia.....	8.2	2.8	87.2	1.8	100.0
New Brunswick.....	8.3	2.8	87.4	1.5	100.0
Quebec.....	5.5	2.6	91.0	0.9	100.0
Ontario.....	2.8	1.8	95.1	0.3	100.0
Manitoba.....	4.5	2.0	92.5	1.0	100.0
Saskatchewan.....	8.9	3.9	74.7	12.5	100.0
Alberta.....	5.6	2.8	89.4	2.2	100.0
British Columbia.....	4.5	2.6	91.1	1.8	100.0
Yukon and Northwest Territories.....	10.4	—	89.6	—	100.0
Industrial Group, 1959¹					
Foods and beverages.....	7.8	3.1	84.0	5.1	100.0
Tobacco and tobacco products.....	0.8	3	98.0	1.2	100.0
Rubber products.....	0.3	3	99.7	—	100.0
Leather products.....	4.8	1.9	93.3	—	100.0
Textiles.....	2.1	1.3	96.6	1	100.0
Knitting mills.....	2.3	3.1	94.6	1	100.0
Clothing.....	6.4	6.9	86.7	—	100.0
Wood products.....	14.4	5.7	79.6	0.3	100.0
Paper products.....	0.3	0.1	99.6	—	100.0
Printing, publishing and allied industries.....	6.6	3.0	89.8	0.6	100.0
Iron and steel products.....	1.7	1.3	97.0	1	100.0
Transportation equipment.....	0.6	0.3	99.1	—	100.0
Non-ferrous metal products.....	1.0	0.7	98.3	—	100.0
Electrical apparatus and supplies.....	0.2	0.3	99.5	—	100.0
Non-metallic mineral products.....	3.2	1.9	94.9	1	100.0
Products of petroleum and coal.....	0.1	3	99.9	1	100.0
Chemicals and allied products.....	1.2	0.3	98.0	0.5	100.0
Miscellaneous manufacturing industries.....	5.1	2.9	92.0	—	100.0

¹ Included with incorporated companies. with individual ownership. included (see text on p. 636).

² Old classification (see text on pp. 623-624).

³ Included with individual ownership. ⁴ For main categories of ownership only, the non-classifiable group is not included (see text on p. 636).

16. Principal Statistics of the Manufacturing Industries classified by Size of Establishment and Type of Ownership, 1959

Size of Establishment and Type of Ownership	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Under \$25,000	11,967	23,218	39,772,447	3,178,251	51,860,632	118,491,742
Individual ownership.....	8,122	15,350	25,891,659	2,444,072	35,674,093	78,278,630
Partnerships.....	1,524	3,657	5,924,044	370,116	7,149,427	16,381,855
Incorporated companies.....	1,171	3,168	6,793,396	566,953	6,323,553	15,880,573
Co-operatives.....	68	116	152,873	27,130	559,834	875,755
Not classifiable.....	1,079	927	1,126,875	—	5,122,785	7,124,929
\$25,000 to \$99,999	9,669	65,142	170,180,808	11,849,343	216,568,257	523,235,150
Individual ownership.....	4,212	25,072	60,184,117	4,727,838	103,722,331	207,733,570
Partnerships.....	1,191	10,362	26,244,401	1,719,539	35,879,713	78,084,140
Incorporated companies.....	3,498	27,801	78,632,527	5,109,614	86,151,015	207,592,359
Co-operatives.....	255	873	1,059,118	292,522	13,128,626	16,134,416
Not classifiable.....	270	1,334	3,161,644	—	7,686,572	13,090,685

¹ See text on p. 636.

16.—Principal Statistics of the Manufacturing Industries classified by Size of Establishment and Type of Ownership, 1959—concluded

Size of Establishment and Type of Ownership	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
\$100,000 to \$499,999	8,841	183,208	571,272,016	37,675,548	1,052,371,027	2,051,452,535
Individual ownership.....	972	12,549	33,442,438	3,116,188	102,925,968	165,555,806
Partnerships.....	657	11,408	32,952,902	2,338,313	67,712,460	124,857,705
Incorporated companies.....	6,643	153,904	490,897,168	30,802,181	788,078,015	1,639,392,573
Co-operatives.....	468	3,565	8,517,625	1,418,866	83,153,010	100,283,840
Not classifiable.....	101	1,782	5,461,883	—	10,501,574	21,362,611
\$500,000 or Over	5,716	1,032,088	4,291,848,435	515,877,050	11,198,400,627	20,618,422,054
Individual ownership.....	43	2,284	7,045,564	431,921	25,845,126	39,403,274
Partnerships.....	56	3,380	10,447,202	468,927	38,311,630	57,951,213
Incorporated companies.....	5,480	1,017,463	4,240,440,144	511,201,849	10,948,863,608	20,243,052,772
Co-operatives.....	125	6,848	24,704,581	3,774,353	172,465,298	235,977,259
Not classifiable.....	12	2,113	9,210,944	—	12,914,965	42,037,536
Totals	36,193	1,303,956	5,073,073,706	563,880,162	12,552,200,543	23,311,601,481

¹ See text on p. 636.

Section 3.—Principal Factors in Manufacturing Production

In addition to the factors dealt with in the following Subsections 1 and 2, one of the principal indicators of growth in manufacturing production is the amount paid as salaries and wages to various groups of employees within those industries. Detailed information on employment, earnings and hours is given in the Labour Chapter of this volume, Section 3.

Subsection 1.—Capital and Repair Expenditures

The current series of statistics covering expenditures on fixed capital and repairs by manufacturing industries commences with the year 1944. Capital expenditures by manufacturers in 1959 totalled \$373,900,000 for construction and \$769,900,000 for machinery and equipment; in addition, \$662,500,000 was spent for repairs. Of the total capital expenditures amounting to \$1,143,800,000, 10.6 p.c. was reported by petroleum and coal products, 11.1 p.c. by paper products, 14.5 p.c. by iron and steel products, 11.6 p.c. by foods and beverages and 7.1 p.c. by chemicals and allied products.

On the whole, there was an upturn in capital expenditures in 1959 after the considerable drop experienced in 1958. However, in each of the latest four years capital expenditures have exceeded \$1,000,000,000. There is naturally considerable variation in the amounts spent by the different industrial groups each year. In 1959, nine groups reported capital expenditures of \$50,000,000 or more, compared with seven in 1958. Of the nine, five reported increased expenditures over 1958—foods and beverages, wood products, iron and steel, transportation equipment and non-metallic mineral products. The other four reported decreases ranging from 0.5 p.c. for paper products to 36.8 p.c. for non-ferrous metal products.

17.—Capital and Repair Expenditures by the Manufacturing Industries, 1950-59, and by Province and Industrial Group, 1959

Year, Province and Industrial Group	Capital Expenditure			Repair Expenditure		
	Con- struction	Machin- ery and Equip- ment	Total	Con- struction	Machin- ery and Equip- ment	Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1950.....	135.4	367.1	502.5	67.6	279.0	346.6
1951.....	267.6	525.0	792.6	85.0	337.0	422.0
1952.....	343.6	629.0	972.6	95.2	363.5	458.7
1953.....	324.5	644.5	969.0	94.6	385.5	480.1
1954.....	287.6	534.5	822.1	97.6	390.9	488.5
1955.....	344.5	601.8	946.3	100.6	413.0	513.6
1956.....	487.7	906.1	1,393.8	112.2	465.6	577.8
1957.....	519.9	959.0	1,478.9	115.4	498.5	613.9
1958.....	397.6	697.4	1,095.0	109.8	462.1	571.9
1959.....	373.9	769.9	1,143.8	125.2	537.3	662.5
Province, 1959						
Newfoundland.....	2.2	6.8	9.0	1.0	5.7	6.7
Prince Edward Island.....	0.1	0.3	0.4	0.1	0.2	0.3
Nova Scotia.....	5.1	9.9	15.0	4.3	12.0	16.3
New Brunswick.....	28.3	26.3	54.6	2.0	8.9	10.9
Quebec.....	107.2	211.6	318.8	34.1	140.2	174.3
Ontario.....	131.5	370.7	502.2	57.1	285.1	342.2
Manitoba.....	30.2	28.6	58.8	4.8	10.1	14.9
Saskatchewan.....	5.2	16.7	21.9	2.7	3.3	6.0
Alberta.....	40.3	35.6	75.9	7.8	16.4	24.2
British Columbia.....	23.8	63.4	87.2	11.3	55.4	66.7
Industrial Group, 1959¹						
Foods and beverages.....	45.4	87.4	132.8	14.7	54.8	69.5
Tobacco and tobacco products.....	3.3	4.9	8.2	1.2	2.8	4.0
Rubber products.....	3.5	9.7	13.2	1.2	8.3	9.5
Leather products.....	0.8	2.2	3.0	0.7	2.5	3.2
Textiles (except clothing).....	4.7	18.1	22.8	3.1	16.8	19.9
Clothing (textile and fur) ²	1.6	10.9	12.5	1.3	4.3	5.6
Wood products.....	15.3	35.4	50.7	6.8	29.7	36.5
Paper products.....	24.2	102.4	126.6	9.9	93.8	103.7
Printing, publishing and allied industries.....	11.8	28.4	40.2	2.0	6.7	8.7
Iron and steel products.....	40.9	124.8	165.7	16.0	121.7	137.7
Transportation equipment.....	20.5	45.2	65.7	10.2	33.5	43.7
Non-ferrous metal products.....	27.8	32.8	60.6	12.2	51.7	63.9
Electrical apparatus and supplies.....	8.5	21.6	30.1	3.4	15.4	18.8
Non-metallic mineral products.....	25.9	47.8	73.7	4.3	39.5	43.8
Products of petroleum and coal.....	109.2	12.5	121.7	26.6	6.3	32.9
Chemicals and allied products.....	24.5	56.5	81.0	10.1	45.0	55.1
Miscellaneous industries.....	6.0	10.5	16.5	1.5	4.5	6.0
Capital items charged to operating expenses.....	—	118.8	118.8	—	—	—

¹ Old classification (see text on pp. 623-624).² Includes knitting mills.

Subsection 2.—Size of Manufacturing Establishments

The size of a manufacturing establishment is generally measured either by the value of factory shipments or by the number of employees but each of these methods has its limitations. The former measure has to be adjusted for changes in the price level and, as between industries, it makes those in which the cost of raw materials is relatively high appear to operate on a larger scale. The latter takes no account of the differences in capital equipment at different times or in various industries and obviously the increased use of machinery may lead to an increase in production concurrently with a decrease in number of employees.

Size as Measured by Selling Value of Factory Shipments.—In 1946, after heavy wartime production had ceased and reconversion had barely begun, there were 1,442 manufacturing establishments, each with an output of \$1,000,000 or over. Their combined production was valued at \$5,377,870,217 and accounted for 66.9 p.c. of the total for all manufacturing plants. By 1949, the number of factories in that category had increased to 1,926 and the proportion of their production to the total was 74.4 p.c. As a result of the tremendous industrial expansion and the increase in prices of the 1950's, the number of plants with shipments valued at over \$1,000,000 increased to 3,394 in 1959. These plants contributed 81.4 p.c. of the total output in that year.

18.—Manufacturing Establishments and Total and Average Production classified by Value of Product Group, 1946, 1949, 1955 and 1959

Value Group	Estab- lish- ments	Total Production ¹	Average per Estab- lishment	Estab- lish- ments	Total Production ¹	Average per Estab- lishment
1946				1949		
	No.	\$	\$	No.	\$	\$
Under \$25,000.....	14,478	138,504,608	9,566	16,176	145,907,685	9,020
\$ 25,000 but under \$ 50,000.....	4,524	162,355,572	35,888	4,884	174,899,010	35,810
50,000 " 100,000.....	3,958	282,976,378	71,495	4,487	320,878,071	71,513
100,000 " 200,000.....	3,060	433,302,078	141,602	3,630	514,921,581	141,852
200,000 " 500,000.....	2,620	824,481,340	314,687	3,195	1,000,486,294	313,141
500,000 " 1,000,000.....	1,167	816,202,278	699,402	1,494	1,041,235,578	696,945
1,000,000 " 5,000,000.....	1,183	2,376,006,853	2,008,459	1,505	3,164,936,378	2,102,948
5,000,000 or over.....	259	3,001,863,364	11,590,206	421	6,116,328,703	14,528,097
Totals and Averages.....	31,249	8,035,692,471	257,150	35,792	12,479,593,300	348,670
1955 ²				1959		
	No.	\$	\$	No.	\$	\$
Under \$25,000.....	15,327	143,480,957	9,362	11,967	118,491,742	9,902
\$ 25,000 but under \$ 50,000.....	5,112	184,847,245	36,159	4,795	172,972,326	36,073
50,000 " 100,000.....	4,781	343,512,650	50,933	4,874	350,262,824	71,864
100,000 " 200,000.....	4,250	608,414,152	143,156	4,382	626,769,497	143,033
200,000 " 500,000.....	3,970	1,261,916,569	317,863	4,459	1,424,683,038	319,507
500,000 " 1,000,000.....	2,013	1,411,584,589	701,234	2,322	1,645,987,369	708,866
1,000,000 " 5,000,000.....	2,101	4,364,363,277	2,077,279	2,624	5,594,574,528	2,132,079
5,000,000 or over.....	628	11,195,814,372	17,827,730	770	13,377,860,157	17,373,844
Totals and Averages.....	38,182	19,513,933,811	511,077	36,193	23,311,601,481	644,091

¹ In 1952 gross value of products was replaced by selling value of factory shipments. included from 1955.

² Newfoundland

Size as Measured by Number of Employees.—In 1946 the 311 establishments employing 500 or more persons accounted for 32.3 p.c. of the total number of employees engaged in manufacturing. In 1959 there were 376 plants with more than 500 employees, 52 of them with over 1,500. The 376 plants employed 32.9 p.c. of the total workers in all manufacturing establishments.

19.—Establishments and Employees in Manufactures classified by Number of Employees per Establishment, 1946, 1949, 1955 and 1959

Employee Group	Estab- lishments	Employees	Average per Estab- lishment	Estab- lishments	Employees	Average per Estab- lishment
	1946			1949		
	No.	No.	No.	No.	No.	No.
Under 5 employees.....	13,810	32,664	2.4	16,647	34,865	2.1
5 to 14 ".....	8,190	67,530	8.2	9,133	75,482	8.3
15 " 49 ".....	5,488	146,939	26.7	5,967	159,012	26.7
50 " 99 ".....	1,759	122,919	69.8	1,905	132,069	69.3
100 " 199 ".....	1,032	144,240	139.7	1,114	156,084	140.1
200 " 499 ".....	659	202,114	306.7	694	213,130	307.1
500 " 999 ".....	311	341,750	1,098.9	332	391,455	1,179.1
1,000 or over.....	—	—	—	—	9,110	—
Head offices ¹	—	—	—	—	—	—
Totals and Averages.....	31,249	1,058,156	33.9	35,792	1,171,207	32.7
	1955 ²			1959		
	No.	No.	No.	No.	No.	No.
Under 5 employees.....	16,762	36,340	2.2	14,594	31,710	2.2
5 to 14 ".....	9,864	81,471	8.3	9,728	80,558	8.3
15 " 49 ".....	6,340	169,575	26.7	6,466	174,506	27.0
50 " 99 ".....	2,082	144,411	69.4	2,250	156,127	69.4
100 " 199 ".....	1,175	163,091	138.8	1,255	173,220	138.0
200 " 499 ".....	739	227,667	308.1	799	241,567	302.4
500 " 999 ".....	243	167,720	690.2	252	172,659	685.2
1,000 " 1,499 ".....	76	91,840	1,208.4	72	89,438	1,242.2
1,500 or over.....	61	200,413	3,285.5	52	167,454	3,220.3
Head offices ¹	—	15,933	—	—	16,687	—
Not classifiable.....	840	—	—	725	—	—
Totals and Averages.....	38,182	1,298,461	3.40	36,193	1,303,956	36.0

¹ Includes only those head offices not located at a plant.² Newfoundland included from 1955.

20.—Manufacturing Establishments classified by Number of Employees and by Province, 1959

Province or Territory	Employees—					Total
	Up to 499	500 to 799	800 to 999	1,000 to 1,499	1,500 or Over	
	No.	No.	No.	No.	No.	No.
Newfoundland.....	795	—	—	1	1	797
Prince Edward Island.....	178	—	—	—	—	178
Nova Scotia.....	1,307	3	2	1	1	1,314
New Brunswick.....	909	3	1	2	—	915
Quebec.....	11,448	73	16	31	16	11,584
Ontario.....	12,908	88	26	30	29	13,081
Manitoba.....	1,597	5	1	3	1	1,607
Saskatchewan.....	882	1	—	—	—	883
Alberta.....	1,817	10	3	—	—	1,830
British Columbia.....	3,964	13	8	3	4	3,992
Yukon and Northwest Territories.....	12	—	—	—	—	12
Canada.....	35,817	196	57	71	52	36,193

Size of Establishments in Leading Industries.—Table 21 shows the degree of concentration in some of the leading industries of Canada. Concentration is extremely marked in the motor vehicle, non-ferrous metal smelting and refining, primary iron and

steel, railway rolling-stock, pulp and paper, aircraft and parts, and rubber goods industries. On the other hand, the degree of concentration is low in such industries as factory clothing, furniture, butter and cheese, miscellaneous food preparations, fruit and vegetable preparations, sawmills and printing and bookbinding.

21.—Percentage Importance of Establishments, each Employing 200 or more Persons, in the 25 Leading Industries, 1959

	Industry ¹	Number of Estab- lishments Employing 200 or more Persons	Percentage of Total Estab- lishments in the Industry	Percentage of Total Shipments in the Industry
1	Pulp and paper.....	82	64.6	95.0
2	Non-ferrous metal smelting and refining.....	21	87.5	97.6
3	Petroleum products.....	18	26.1	79.9
4	Slaughtering and meat packing.....	36	20.0	78.8
5	Motor vehicles.....	9	56.3	98.9
6	Primary iron and steel.....	17	34.7	93.5
7	Sawmills.....	24	0.4	25.8
8	Butter and cheese.....	20	1.7	22.6
9	Miscellaneous electrical apparatus and supplies.....	27	14.9	73.2
10	Sheet metal products.....	19	3.9	44.1
11	Miscellaneous food preparations.....	7	2.3	29.9
12	Bread and other bakery products.....	28	1.1	33.4
13	Printing and publishing.....	29	3.9	68.3
14	Rubber goods, including footwear.....	25	28.1	90.3
15	Machinery, industrial.....	32	8.6	52.3
16	Furniture.....	21	1.1	18.5
17	Aircraft and parts.....	19	24.4	91.7
18	Motor vehicle parts.....	19	9.0	66.8
19	Boxes and bags, paper.....	20	8.8	41.6
20	Acids, alkalies and salts.....	14	24.6	64.1
21	Fruit and vegetable preparations.....	9	2.4	36.7
22	Printing and bookbinding.....	14	0.8	25.1
23	Railway rolling-stock.....	18	62.1	94.8
24	Feeds, stock and poultry, prepared.....	1	--	--
25	Clothing, women's factory.....	5	0.8	47.2

¹ Old classification (see text on pp. 623-624).

PART III.—PROVINCIAL AND LOCAL DISTRIBUTION OF MANUFACTURING PRODUCTION

Section 1.—Provincial Distribution of Manufacturing Production

This Section shows the distribution and concentration of the manufacturing industries in each province followed by a general analysis of the leading industries in the individual provinces. Ontario and Quebec are by far the most important manufacturing provinces of Canada. Their combined production in 1960 amounted to \$18,892,000,000 or 80 p.c. of the total factory shipments of manufactured products. The water power and other important resources of the two provinces, their large population concentrations and consumer demands and their nearness to the larger markets of the United States have contributed to this progress.

Table 1 shows the outstanding predominance of Ontario and Quebec in each industrial group. In 1960, Quebec led in the manufacture of tobacco products, leather goods, textiles, knitting mills, clothing and products of petroleum and coal and had a very slight margin over Ontario in output of paper. In each of the other groups, except wood products, Ontario had the greater production of the two provinces. In the production of wood products, British Columbia, with 52 p.c. of the total, held the dominant position, outranking both Ontario and Quebec which accounted for 17 p.c. and 19 p.c., respectively, of the total. In each of the other groups Ontario and Quebec led by a wide margin.

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960

NOTE.—Figures for both years based on the revised Standard Industrial Classification (see text on pp. 623-624).

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
NEWFOUNDLAND						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	76	3,460	7,326,040	17,114,160	..	34,264,235
Leather.....	4	78	150,920	318,473	..	527,028
Textiles.....	3	77	233,862	444,869	..	871,982
Knitting mills.....	1	1	1	1	1	1
Clothing.....	1	1	1	1	1	1
Wood.....	625	1,234	1,516,482	3,752,683	..	6,185,954
Furniture and fixtures.....	5	10	20,266	18,236	..	48,780
Paper and allied industries ²	2	3,085	15,943,252	26,608,183	..	62,508,058
Printing, publishing and allied in- dustries.....	29	428	1,338,609	614,594	..	3,074,215
Primary metal.....	3	69	184,549	101,718	..	356,350
Metal fabricating (except machinery and transportation equipment)....	6	145	527,900	886,821	..	1,886,522
Machinery (except electrical).....	1	1	1	1	1	1
Transportation equipment.....	1	1	1	1	1	1
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	12	333	1,249,609	1,949,610	..	4,194,175
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products....	4	70	251,887	828,227	..	1,748,854
Miscellaneous manufacturing indus- tries.....	17	634	1,855,025	1,316,777	..	3,272,533
Totals, 1959.....	786	9,623	30,598,401	53,954,361	..	118,938,666
1960	No.	No.	\$	\$	\$	\$
Foods and beverages.....	80	3,848	8,530,770	20,756,209	18,642,006	39,647,592
Leather.....	3	57	115,784	245,005	135,351	377,800
Textiles.....	1	1	1	1	1	1
Knitting mills.....	1	1	1	1	1	1
Clothing.....	1	1	1	1	1	1
Wood.....	470	667	1,464,090	3,142,353	2,108,350	5,401,222
Furniture and fixtures.....	8	26	78,378	50,361	104,347	156,566
Paper and allied industries ²	2	3,082	16,858,626	28,773,938	34,503,473	67,985,619
Printing, publishing and allied in- dustries.....	29	412	1,305,619	629,255	2,499,586	3,204,923
Primary metal.....	3	94	280,658	105,111	293,382	384,802
Metal fabricating (except machinery and transportation equipment)....	6	175	576,818	842,410	890,658	1,667,473
Machinery (except electrical).....	1	1	1	1	1	1
Transportation equipment.....	1	1	1	1	1	1
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	11	303	1,065,446	1,650,688	2,214,084	4,392,124
Chemicals and chemical products....	3	69	257,316	782,030	921,848	1,690,065
Miscellaneous manufacturing indus- tries.....	20	756	2,169,683	1,926,437	2,337,184	4,376,392
Totals, 1960.....	635	9,489	32,703,188	58,903,797	64,650,269	129,284,578
PRINCE EDWARD ISLAND						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	82	1,105	2,441,095	16,414,163	..	21,331,223
Tobacco products.....	1	1	1	1	1	1
Leather.....	1	1	1	1	1	1
Textiles.....	3	72	144,168	826,209	..	1,387,340
Wood.....	62	186	264,404	526,849	..	962,233
Furniture and fixtures.....	3	18	42,027	39,510	..	100,206
Paper and allied industries.....	1	1	1	1	1	1
Printing, publishing and allied in- dustries.....	7	199	495,447	214,773	..	1,074,114
Primary metal.....	1	1	1	1	1	1
Metal fabricating (except machinery and transportation equipment)....	3	29	82,706	119,218	..	244,951
Transportation equipment.....	3	38	93,205	84,453	..	206,135

¹ Confidential; included in "Miscellaneous manufacturing industries".
authorized by the firms concerned.

² Publication of these figures was

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
PRINCE EDWARD ISLAND—concluded						
1959—concluded	No.	No.	\$	\$	\$	\$
Non-metallic mineral products.....	4	18	53,358	57,148	..	176,100
Chemicals and chemical products...	1	1	1	1	1	1
Miscellaneous industries.....	7	56	158,241	1,325,799	..	1,782,572
Totals, 1959.....	174	1,721	3,774,651	19,618,122	..	27,264,874
1960						
Foods and beverages.....	84	1,210	2,837,332	17,469,430	5,698,180	23,451,413
Tobacco products.....	1	1	1	1	1	1
Leather.....	1	1	1	1	1	1
Textiles.....	3	64	140,604	806,660	445,772	1,289,873
Wood.....	66	177	318,010	788,238	607,255	1,409,986
Furniture and fixtures.....	4	20	48,582	41,241	74,728	119,985
Paper and allied industries.....	1	1	1	1	1	1
Printing, publishing and allied industries.....	7	177	474,657	223,910	894,098	1,144,594
Primary metal.....	1	1	1	1	1	1
Metal fabricating (except machinery and transportation equipment)....	3	32	84,200	129,665	135,218	268,407
Transportation equipment.....	4	40	102,346	109,048	120,222	236,756
Non-metallic mineral products.....	4	21	62,563	56,600	125,288	187,760
Chemicals and chemical products...	1	1	1	1	1	1
Miscellaneous manufacturing industries.....	9	65	186,623	1,595,268	589,599	2,122,587
Totals, 1960.....	184	1,806	4,254,917	21,220,060	8,690,360	30,231,361
NOVA SCOTIA						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	361	8,493	20,535,231	71,669,513	..	113,363,327
Leather.....	1	1	1	1	1	1
Textiles.....	10	459	1,102,869	1,838,085	..	4,745,700
Knitting mills.....	5	1,046	2,134,080	3,948,801	..	7,741,437
Clothing.....	8	350	583,598	1,283,885	..	2,207,355
Wood.....	567	3,074	5,843,337	15,411,106	..	26,576,610
Furniture and fixtures.....	26	285	640,273	938,631	..	1,968,311
Paper and allied industries.....	6	1,526	5,764,604	10,827,891	..	25,634,106
Printing, publishing and allied industries.....	79	1,370	4,579,252	2,527,606	..	12,091,084
Primary metal.....	1	1	1	1	1	1
Metal fabricating (except machinery and transportation equipment)....	47	1,630	5,733,953	10,531,900	..	20,439,199
Machinery (except electrical).....	5	193	709,114	536,962	..	1,623,938
Transportation equipment.....	67	4,012	14,837,053	12,768,731	..	33,840,425
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	30	456	1,296,772	1,205,149	..	4,312,303
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products...	16	282	970,146	3,166,507	..	6,508,617
Miscellaneous manufacturing industries.....	31	5,065	23,950,324	86,389,621	..	138,289,233
Totals, 1959.....	1,258	28,246	88,680,606	223,044,388	..	399,341,645
1960						
Foods and beverages.....	383	8,875	22,065,186	77,046,678	46,234,548	125,603,722
Leather.....	1	1	1	1	1	1
Textiles.....	9	513	1,332,100	2,676,167	2,940,554	5,323,277
Knitting mills.....	6	1,119	2,255,446	4,375,382	3,862,761	8,196,300
Clothing.....	8	318	549,092	1,289,732	902,540	2,136,200
Wood.....	549	2,933	5,783,967	15,583,750	10,299,958	26,459,112
Furniture and fixtures.....	30	302	676,054	954,515	1,141,095	2,106,807
Paper and allied industries.....	6	1,557	6,060,355	11,283,101	13,137,346	25,744,779
Printing, publishing and allied industries.....	76	1,369	4,879,798	2,756,206	8,737,968	11,589,230

1 Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
NOVA SCOTIA—concluded						
1960—concluded	No.	No.	\$	\$	\$	\$
Primary metal.....	1	1	1	1	1	1
Metal fabricating (except machinery and transportation equipment)....	46	1,455	5,461,046	9,232,178	8,691,152	18,358,408
Machinery (except electrical).....	5	289	1,073,977	711,712	1,919,744	2,543,905
Transportation equipment.....	68	3,716	13,808,055	11,602,446	16,778,822	29,134,467
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	33	485	1,447,885	2,453,076	3,149,832	6,010,637
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products...	13	260	925,388	2,777,906	3,061,585	6,151,087
Miscellaneous manufacturing indus- tries.....	46	5,415	25,961,776	77,549,992	53,950,332	136,824,157
Totals, 1960	1,278	28,606	92,280,125	220,292,841	174,808,237	406,182,088
NEW BRUNSWICK						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	286	6,719	15,979,889	81,672,303	..	122,998,846
Leather.....	6	324	741,034	1,219,804	..	2,428,581
Textiles.....	14	415	926,234	1,552,767	..	3,020,961
Knitting mills.....	1	1	1	1	1	1
Clothing.....	4	187	269,152	153,152	..	562,629
Wood.....	396	3,409	7,216,394	21,168,964	..	34,602,426
Furniture and fixtures.....	20	94	204,420	229,748	..	646,504
Paper and allied industries.....	18	4,332	19,427,439	44,713,621	..	101,258,594
Printing, publishing and allied in- dustries.....	52	948	3,125,842	1,891,950	..	7,010,443
Primary metal.....	3	50	135,994	47,100	..	296,214
Metal fabricating (except machinery and transportation equipment)....	28	963	3,296,225	4,499,682	..	10,335,019
Machinery (except electrical).....	4	56	247,870	225,921	..	544,528
Transportation equipment.....	10	1,651	6,716,335	10,393,376	..	18,437,586
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	30	593	1,905,205	1,860,925	..	7,160,144
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products...	8	146	501,672	2,950,369	..	4,881,349
Miscellaneous manufacturing indus- tries.....	21	1,034	3,177,985	5,443,155	..	11,230,909
Totals, 1959	900	20,921	63,871,690	178,022,837	..	325,414,733
1960	No.	No.	\$	\$	\$	\$
Foods and beverages.....	282	7,065	17,692,691	84,411,165	44,631,185	130,576,576
Leather.....	5	297	669,788	1,017,502	1,145,308	2,200,719
Textiles.....	11	394	949,912	1,697,910	1,735,256	3,695,878
Knitting mills.....	1	1	1	1	1	1
Clothing.....	4	182	282,435	220,908	431,313	647,873
Wood.....	380	3,091	7,082,203	20,067,507	12,623,812	33,163,389
Furniture and fixtures.....	24	114	224,413	211,782	364,283	636,923
Paper and allied industries.....	19	4,507	21,655,074	48,425,040	54,956,814	112,191,670
Printing, publishing and allied in- dustries.....	53	1,067	3,661,971	2,103,283	5,634,660	7,863,039
Primary metal.....	3	51	137,149	81,047	176,795	269,735
Metal fabricating (except machinery and transportation equipment)....	30	955	3,211,174	5,183,960	5,248,065	10,800,590
Machinery (except electrical).....	3	44	168,311	143,085	284,424	446,554
Transportation equipment.....	10	2,514	9,076,045	10,927,676	9,795,679	21,032,278
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	30	571	1,921,625	1,963,034	4,106,218	6,985,991
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products...	8	132	524,362	3,385,633	1,479,895	4,803,211
Miscellaneous manufacturing indus- tries.....	39	1,283	4,329,224	29,273,537	15,421,468	41,795,720
Totals, 1960	901	22,267	71,586,377	209,113,069	158,035,175	377,110,146

¹ Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
QUEBEC						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	2,591	49,374	163,587,252	792,408,569	..	1,233,931,719
Tobacco products.....	21	7,381	28,827,905	99,402,193	..	185,816,116
Rubber.....	33	5,748	20,107,969	26,600,503	..	61,132,061
Leather.....	321	16,702	40,978,190	64,487,270	..	126,603,741
Textiles.....	396	36,547	112,274,367	244,547,118	..	434,159,426
Knitting mills.....	179	10,616	26,310,181	52,529,583	..	98,011,405
Clothing.....	1,464	54,645	137,122,714	261,942,910	..	485,680,242
Wood.....	2,112	19,448	47,809,718	113,197,319	..	198,882,194
Furniture and fixtures.....	668	12,446	37,583,109	56,566,097	..	117,937,247
Paper and allied industries.....	191	36,750	164,806,877	344,769,658	..	752,404,240
Printing, publishing and allied industries.....	922	19,917	81,414,645	73,995,071	..	225,657,530
Primary metal.....	114	19,856	93,859,641	491,134,563	..	723,210,398
Metal fabricating (except machinery and transportation equipment)....	646	27,220	113,580,096	183,052,766	..	389,697,410
Machinery (except electrical).....	87	7,802	31,271,251	44,012,379	..	102,027,530
Transportation equipment.....	110	30,858	137,617,769	157,913,577	..	344,840,050
Electrical products.....	110	24,559	105,169,023	149,689,537	..	306,393,550
Non-metallic mineral products.....	377	12,828	50,787,976	71,083,919	..	196,331,017
Petroleum and coal products.....	14	3,225	17,918,834	288,603,760	..	380,223,483
Chemicals and chemical products.....	364	21,044	91,597,288	178,601,947	..	407,872,384
Miscellaneous manufacturing industries.....	583	13,565	43,165,358	62,166,369	..	141,238,015
Totals, 1959.....	11,293	430,531	1,545,790,163	3,756,705,098	..	6,912,049,758
1960						
Foods and beverages.....	2,656	50,841	173,267,206	822,603,064	447,158,967	1,282,969,558
Tobacco products.....	22	6,879	28,923,978	101,345,090	87,242,416	188,347,104
Rubber.....	33	5,980	20,979,387	29,952,956	34,146,442	64,379,844
Leather.....	334	16,141	41,185,065	62,284,215	65,848,756	129,347,943
Textiles.....	404	36,875	119,994,533	244,152,355	198,511,039	449,330,287
Knitting mills.....	209	10,889	28,316,995	58,075,308	48,666,349	106,784,347
Clothing.....	1,513	55,343	140,235,320	264,420,322	232,049,026	496,585,285
Wood.....	2,164	19,052	48,939,436	113,103,127	83,636,727	199,655,469
Furniture and fixtures.....	726	12,795	39,010,076	57,213,031	63,237,171	121,168,996
Paper and allied industries.....	195	36,342	173,591,824	352,780,491	373,691,060	772,468,104
Printing, publishing and allied industries.....	987	20,097	86,932,662	82,319,495	165,747,755	248,928,733
Primary metal.....	117	21,433	106,322,888	571,405,495	235,199,340	842,504,380
Metal fabricating (except machinery and transportation equipment)....	709	26,843	112,482,817	173,907,316	184,983,306	364,574,944
Machinery (except electrical).....	89	8,029	34,477,689	50,024,297	59,337,376	111,242,121
Transportation equipment.....	118	31,703	146,954,986	153,470,832	203,594,351	361,389,448
Electrical products.....	114	24,879	110,754,298	157,183,693	180,362,041	335,384,466
Non-metallic mineral products.....	407	12,362	49,301,021	68,192,418	101,131,985	181,458,526
Petroleum and coal products.....	15	3,130	18,561,425	284,308,350	88,402,576	383,162,090
Chemicals and chemical products.....	368	20,074	92,107,137	167,397,084	234,636,662	414,345,449
Miscellaneous manufacturing industries.....	781	14,262	47,975,731	67,032,878	85,186,349	152,068,909
Totals, 1960.....	11,961	433,949	1,620,314,474	3,881,172,827	3,172,769,694	7,206,096,003
ONTARIO						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	3,026	79,283	292,061,164	1,218,040,845	..	1,978,356,361
Tobacco products.....	17	2,895	9,221,244	113,355,170	..	138,693,353
Rubber.....	47	15,285	66,490,900	133,613,414	..	285,983,867
Leather.....	219	13,344	39,204,859	74,018,154	..	135,475,565
Textiles.....	369	24,101	81,908,764	163,372,091	..	328,610,437
Knitting mills.....	122	8,771	22,499,504	40,042,405	..	79,101,404
Clothing.....	643	23,027	64,862,884	96,358,172	..	196,764,459
Wood.....	1,374	17,191	52,986,730	105,183,732	..	197,202,853
Furniture and fixtures.....	761	15,909	54,277,526	80,631,966	..	166,550,087

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
ONTARIO—concluded						
1959—concluded	No.	No.	\$	\$	\$	\$
Paper and allied industries.....	254	36,550	162,876,227	371,418,563	..	742,675,495
Printing, publishing and allied industries.....	1,399	36,527	160,447,858	139,778,604	..	426,015,045
Primary metal.....	212	55,853	279,257,752	879,703,895	..	1,628,749,373
Metal fabricating (except machinery and transportation equipment).....	1,293	55,059	236,504,946	374,466,101	..	792,213,009
Machinery (except electrical).....	314	34,103	155,706,020	237,113,474	..	479,599,496
Transportation equipment.....	264	62,668	311,197,787	884,197,027	..	1,487,876,992
Electrical products.....	335	53,865	229,467,413	391,811,701	..	812,295,309
Non-metallic mineral products.....	515	20,989	90,031,193	115,803,255	..	338,369,445
Petroleum and coal products.....	25	5,860	34,856,927	289,595,089	..	371,277,277
Chemicals and chemical products.....	547	27,167	123,142,449	335,356,311	..	751,770,868
Miscellaneous manufacturing industries.....	921	27,225	99,064,926	145,871,260	..	330,120,976
Totals, 1959	12,657	615,672	2,566,167,073	6,189,731,229	..	11,667,801,764
1960						
Foods and beverages.....	2,192	81,637	306,526,237	1,271,921,592	766,024,720	2,060,451,197
Tobacco products.....	17	2,843	9,405,165	114,997,563	30,512,523	146,018,787
Rubber.....	47	14,184	62,925,360	121,802,358	132,856,133	256,110,750
Leather.....	218	12,958	39,400,774	65,859,382	59,559,124	126,969,659
Textiles.....	391	22,030	77,797,715	164,078,112	153,838,796	322,523,392
Knitting mills.....	132	8,186	22,086,068	39,097,188	38,045,936	77,829,962
Clothing.....	639	22,427	63,890,560	95,512,596	101,432,188	195,707,399
Wood.....	1,361	16,090	50,406,190	95,789,489	84,821,974	181,941,219
Furniture and fixtures.....	828	15,988	55,521,280	79,553,053	87,477,826	168,921,168
Paper and allied industries.....	200	36,510	170,914,465	381,465,452	553,649,246	772,010,467
Printing, publishing and allied industries.....	1,468	37,098	169,776,280	148,205,105	302,609,162	453,400,878
Primary metal.....	205	53,838	274,415,119	833,581,806	648,005,882	1,524,987,637
Metal fabricating (except machinery and transportation equipment).....	1,459	55,465	246,875,046	374,465,211	410,556,961	825,721,664
Machinery (except electrical).....	324	31,819	148,400,579	227,780,315	242,772,654	481,960,914
Transportation equipment.....	280	58,405	266,854,623	866,600,224	568,269,146	1,404,616,558
Electrical products.....	355	59,757	249,028,065	395,979,192	416,915,276	791,200,450
Non-metallic mineral products.....	544	20,265	88,568,968	114,111,995	159,361,259	325,535,212
Petroleum and coal products.....	26	5,474	34,706,709	275,485,851	76,987,638	308,801,252
Chemicals and chemical products.....	592	28,449	134,579,950	345,171,400	424,756,001	798,813,404
Miscellaneous manufacturing industries.....	1,134	28,593	108,537,402	155,878,269	189,058,382	345,799,383
Totals, 1960	13,387	603,467	2,585,676,553	6,141,903,570	5,303,807,608	11,685,675,652
MANITOBA						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	378	10,237	38,028,043	201,989,395	..	298,291,892
Rubber.....	1	1	..	..	..	..
Leather.....	17	619	1,567,662	3,530,108	..	5,938,664
Textiles.....	31	516	1,472,239	6,507,399	..	9,434,278
Knitting mills.....	4	118	237,836	671,809	..	1,126,223
Clothing.....	135	5,543	13,627,633	26,646,172	..	48,283,453
Wood.....	257	1,297	3,113,912	5,410,036	..	10,827,930
Furniture and fixtures.....	115	1,973	6,457,779	12,483,765	..	22,673,778
Paper and allied industries.....	24	1,730	6,532,436	19,756,041	..	42,186,491
Printing, publishing and allied industries.....	193	3,761	14,309,951	11,874,869	..	38,473,902
Primary metal.....	13	1,744	7,494,256	11,966,988	..	28,003,706
Metal fabricating (except machinery and transportation equipment).....	114	3,765	15,351,408	25,357,963	..	52,622,818
Machinery (except electrical).....	32	1,066	4,122,673	7,879,909	..	14,769,081
Transportation equipment.....	36	5,979	23,592,556	25,971,920	..	55,614,079
Electrical products.....	18	806	2,764,010	6,806,787	..	13,107,847
Non-metallic mineral products.....	45	1,636	6,535,080	10,257,919	..	28,280,632

¹ Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
MANITOBA—concluded						
1959—concluded	No.	No.	\$	\$	\$	\$
Petroleum and coal products.....	6	685	3,182,748	32,873,158	..	49,710,335
Chemicals and chemical products...	33	666	2,365,267	7,557,426	..	15,340,095
Miscellaneous manufacturing indus- tries.....	71	866	2,857,260	3,000,653	..	7,997,992
Totals, 1959.....	1,522	43,007	153,613,079	421,542,217	..	742,183,196
1960	No.	No.	\$	\$	\$	\$
Foods and beverages.....	410	10,540	39,409,973	202,972,797	86,447,195	289,133,510
Rubber.....	1	1	1	1	1	1
Leather.....	19	554	1,401,687	3,324,593	2,029,738	5,508,796
Textiles.....	35	508	1,537,447	6,629,739	3,250,528	9,998,044
Knitting mills.....	5	139	299,198	843,533	707,894	1,450,712
Clothing.....	140	5,646	14,268,844	27,021,708	21,715,673	48,891,769
Wood.....	239	1,161	3,051,709	4,965,308	4,720,297	9,858,888
Furniture and fixtures.....	119	1,937	6,495,677	12,060,074	9,808,647	22,073,061
Paper and allied industries.....	23	1,624	6,582,123	17,889,680	19,655,927	39,262,349
Printing, publishing and allied in- dustries.....	192	3,917	15,215,257	12,119,850	26,828,575	39,267,032
Primary metal.....	12	1,426	6,366,260	12,557,813	12,093,555	25,902,148
Metal fabricating (except machinery and transportation equipment)....	122	3,513	14,867,447	23,065,821	33,849,850	58,385,484
Machinery (except electrical).....	30	1,143	4,443,957	8,470,723	8,378,284	16,874,301
Transportation equipment.....	34	5,395	21,408,616	25,828,586	27,577,518	54,109,555
Electrical products.....	18	806	2,871,730	6,033,908	5,918,447	12,215,815
Non-metallic mineral products.....	46	1,535	6,271,996	8,837,484	15,093,288	26,451,602
Petroleum and coal products.....	7	698	3,394,336	34,522,960	13,627,321	51,992,690
Chemicals and chemical products...	35	649	2,420,250	7,758,316	7,946,243	15,643,085
Miscellaneous manufacturing indus- tries.....	106	1,148	3,957,304	4,680,538	6,785,712	11,498,505
Totals, 1960.....	1,592	42,339	154,263,511	419,583,431	306,434,692	738,457,346
SASKATCHEWAN						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	236	5,664	21,614,356	115,687,828	..	170,096,864
Textiles.....	7	67	162,941	714,070	..	1,032,964
Clothing.....	9	270	705,675	1,177,544	..	2,364,916
Wood.....	281	1,109	2,566,793	5,412,501	..	9,928,857
Furniture and fixtures.....	30	91	252,975	237,249	..	612,664
Paper and allied industries.....	7	177	625,773	1,365,438	..	2,476,124
Printing, publishing and allied in- dustries.....	137	1,534	5,343,656	3,209,034	..	12,653,244
Primary metal.....	5	669	3,088,475	18,596,039	..	36,638,154
Metal fabricating (except machinery and transportation equipment)....	37	563	2,033,907	4,581,595	..	8,373,820
Machinery (except electrical).....	13	173	658,815	811,615	..	2,163,098
Transportation equipment.....	3	57	138,150	206,032	..	681,348
Electrical products.....	1	1	1	1	..	1
Non-metallic mineral products.....	20	660	2,493,069	3,273,142	..	11,488,983
Petroleum and coal products.....	10	1,089	5,801,658	53,749,091	..	79,107,824
Chemicals and chemical products...	9	82	353,684	1,553,609	..	2,800,437
Miscellaneous manufacturing indus- tries.....	26	202	692,450	1,893,886	..	3,665,586
Totals, 1959.....	840	12,407	46,532,277	212,568,673	..	344,054,883
1960	No.	No.	\$	\$	\$	\$
Foods and beverages.....	254	5,860	22,127,442	115,001,667	50,807,128	168,227,111
Textiles.....	9	90	241,882	776,604	346,809	1,124,536
Clothing.....	10	266	778,440	1,383,904	1,286,972	2,391,166
Wood.....	266	978	2,624,546	5,097,887	4,544,466	9,706,861
Furniture and fixtures.....	35	111	290,730	298,514	399,388	704,930
Paper and allied industries.....	7	200	677,298	1,635,266	1,392,760	3,143,236
Printing, publishing and allied in- dustries.....	136	1,588	5,649,163	3,425,622	9,790,399	13,356,385

1 Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
SASKATCHEWAN—concluded						
1960—concluded	No.	No.	\$	\$	\$	\$
Primary metal.....	5	720	3,425,084	18,563,133	14,017,389	34,449,898
Metal fabricating (except machinery and transportation equipment)....	48	750	2,859,645	7,574,256	4,633,531	12,330,937
Machinery (except electrical).....	13	150	596,208	974,285	1,003,146	1,981,292
Transportation equipment.....	6	71	220,649	145,921	1,148,642	1,805,999
Electrical products.....	1	1	1	1	1	1
Non-metallic mineral products.....	35	631	2,549,228	3,657,196	6,178,705	11,168,793
Petroleum and coal products.....	11	1,111	6,190,940	52,964,424	19,124,951	76,519,283
Chemicals and chemical products.....	10	92	412,274	1,664,524	1,535,823	3,213,217
Miscellaneous manufacturing industries.....	42	290	1,120,737	2,241,642	2,966,826	5,149,617
Totals, 1960.....	887	12,918	49,764,266	215,404,848	119,776,935	344,773,261
ALBERTA						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	450	12,157	44,786,125	257,771,411	..	370,969,101
Rubber.....	1	1	1	1	1	1
Leather.....	11	83	226,530	502,809	..	960,910
Textiles.....	17	455	1,694,275	4,407,848	..	7,750,967
Knitting mills.....	3	28	57,501	79,037	..	167,754
Clothing.....	22	1,114	2,753,685	5,944,997	..	11,230,077
Wood.....	517	4,449	11,881,272	27,223,909	..	50,591,386
Furniture and fixtures.....	88	882	2,797,748	4,731,475	..	9,421,793
Paper and allied industries.....	20	1,260	5,938,522	18,318,883	..	35,351,409
Printing, publishing and allied industries.....	193	2,734	10,447,767	8,036,173	..	29,071,487
Primary metal.....	16	1,302	6,474,292	21,658,912	..	39,158,358
Metal fabricating (except machinery and transportation equipment)....	152	3,775	15,718,570	29,305,978	..	54,199,861
Machinery (except electrical).....	13	190	691,846	1,556,678	..	2,711,096
Transportation equipment.....	29	3,194	12,842,086	13,671,719	..	28,132,324
Electrical products.....	10	206	731,286	3,334,768	..	5,084,470
Non-metallic mineral products.....	20	2,937	11,836,084	19,874,349	..	51,829,001
Petroleum and coal products.....	19	1,804	10,003,743	78,602,658	..	110,238,007
Chemicals and chemical products.....	37	1,890	8,868,496	18,934,523	..	55,958,693
Miscellaneous manufacturing industries.....	73	556	2,219,849	2,076,312	..	6,577,570
Totals, 1959.....	1,750	39,016	149,969,677	516,032,439	..	869,404,244
1960						
Foods and beverages.....	492	12,267	46,584,220	260,242,015	104,674,592	366,920,665
Rubber.....	1	1	1	1	1	1
Leather.....	9	86	253,589	522,209	537,873	1,080,404
Textiles.....	20	431	1,769,622	4,259,378	3,159,870	7,504,780
Knitting mills.....	3	27	56,774	79,560	92,687	174,112
Clothing.....	20	1,145	3,051,229	6,612,463	5,433,054	11,767,298
Wood.....	484	3,695	10,638,131	24,614,555	18,874,782	44,196,502
Furniture and fixtures.....	93	896	2,900,872	4,566,736	4,691,905	9,270,149
Paper and allied industries.....	22	1,198	5,762,860	18,869,657	20,383,882	41,153,060
Printing, publishing and allied industries.....	194	2,794	10,922,412	8,466,937	21,670,888	30,386,482
Primary metal.....	21	1,357	6,893,421	32,294,771	18,678,606	50,326,496
Metal fabricating (except machinery and transportation equipment)....	159	3,805	16,081,385	27,754,171	28,282,311	55,983,238
Machinery (except electrical).....	16	355	1,371,670	2,583,909	2,450,500	5,055,897
Transportation equipment.....	36	2,985	12,436,798	11,505,155	14,582,689	26,183,431
Electrical products.....	12	227	802,041	3,292,645	3,307,661	5,906,067
Non-metallic mineral products.....	97	3,478	14,022,865	20,602,176	33,215,695	55,995,076
Petroleum and coal products.....	23	1,742	10,036,991	75,094,743	31,545,978	110,646,024
Chemicals and chemical products.....	40	1,903	9,808,028	20,961,129	35,324,672	58,443,795
Miscellaneous manufacturing industries.....	107	766	2,946,620	2,586,707	6,289,899	8,664,324
Totals, 1960.....	1,848	39,157	156,339,528	524,908,916	353,197,544	889,657,800

¹ Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—continued

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
BRITISH COLUMBIA						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	660	15,891	58,425,480	239,493,036	..	284,330,782
Rubber.....	6	59	259,775	193,477	..	506,564
Leather.....	18	374	1,041,954	1,643,479	..	3,253,926
Textiles.....	39	815	2,605,948	5,274,426	..	9,847,130
Knitting mills.....	4	313	793,584	1,174,814	..	2,663,149
Clothing.....	57	1,441	3,953,927	6,126,347	..	11,754,827
Wood.....	1,640	38,600	144,288,886	293,987,085	..	543,738,973
Furniture and fixtures.....	219	2,095	7,810,478	12,186,969	..	24,463,347
Paper and allied industries.....	39	9,322	50,684,008	106,153,045	..	274,136,336
Printing, publishing and allied industries.....	301	5,120	23,568,688	14,261,893	..	54,372,314
Primary metal.....	44	6,517	33,258,954	91,724,379	..	163,832,386
Metal fabricating (except machinery and transportation equipment).....	287	5,675	25,378,175	42,262,948	..	85,221,587
Machinery (except electrical).....	52	1,628	7,483,490	10,640,450	..	22,293,741
Transportation equipment.....	112	4,809	23,504,620	19,948,989	..	57,513,652
Electrical products.....	39	1,029	4,555,613	9,267,484	..	17,859,904
Non-metallic mineral products.....	102	1,915	8,303,359	11,218,743	..	30,209,310
Petroleum and coal products.....	10	1,498	8,328,279	77,774,848	..	106,291,313
Chemicals and chemical products.....	102	2,604	11,536,303	26,919,945	..	67,248,328
Miscellaneous manufacturing industries.....	160	1,242	4,850,424	4,831,178	..	12,822,296
Totals, 1959.....	3,891	100,947	420,629,945	974,483,535	..	1,872,399,845
1960						
Foods and beverages.....	710	16,448	61,887,246	245,695,327	134,073,390	393,071,309
Rubber.....	7	58	285,330	215,789	406,881	646,808
Leather.....	16	253	714,016	954,165	1,068,277	2,113,857
Textiles.....	40	769	2,473,600	4,997,338	4,008,861	8,997,357
Knitting mills.....	4	293	831,556	1,217,816	1,826,623	3,051,181
Clothing.....	55	1,409	3,961,287	6,044,496	5,796,322	11,775,395
Wood.....	1,507	37,387	153,111,269	314,814,524	232,519,162	555,852,549
Furniture and fixtures.....	232	2,017	7,414,325	11,319,454	11,194,183	22,822,239
Paper and allied industries.....	46	10,409	56,512,387	115,690,482	164,503,202	294,084,206
Printing, publishing and allied industries.....	317	5,160	23,901,225	14,568,814	41,609,772	56,638,572
Primary metal.....	44	6,652	35,257,245	112,366,682	73,895,464	196,729,510
Metal fabricating (except machinery and transportation equipment).....	314	5,482	26,238,803	40,524,086	43,393,764	84,813,358
Machinery (except electrical).....	52	1,622	7,632,899	8,299,539	12,390,495	22,038,189
Transportation equipment.....	125	4,039	19,262,825	15,048,959	28,731,777	44,401,344
Electrical products.....	39	970	4,538,757	8,422,855	9,958,029	18,071,620
Non-metallic mineral products.....	119	1,925	8,256,503	10,225,697	16,894,162	29,275,859
Petroleum and coal products.....	10	1,437	8,678,588	79,764,195	23,442,139	108,761,839
Chemicals and chemical products.....	101	2,605	12,041,062	31,277,145	37,369,653	68,023,742
Miscellaneous manufacturing industries.....	257	1,572	6,369,728	5,549,610	9,764,244	15,748,696
Totals, 1960.....	3,995	100,507	439,368,651	1,026,998,973	853,836,400	1,936,917,630
YUKON AND NORTHWEST TERRITORIES						
1959	No.	No.	\$	\$	\$	\$
Foods and beverages.....	4	13	50,995	73,223	..	229,744
Wood.....	4	21	72,850	134,568	..	259,970
Printing, publishing and allied industries.....	1	1	1	1	1	1
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products.....	1	1	1	1	1	1
Miscellaneous manufacturing industries.....	4	81	486,239	1,949,018	..	2,342,672
Totals, 1959.....	12	115	610,084	2,156,809	..	2,832,356

1 Confidential; included in "Miscellaneous manufacturing industries".

1.—Summary Statistics of Manufactures of each Province classified by Industrial Group, 1959 and 1960—concluded

Year and Industrial Group	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
YUKON AND NORTHWEST TERRITORIES—concluded						
1960	No.	No.	\$	\$	\$	\$
Foods and beverages.....	5	20	55,511	80,617	147,955	240,999
Wood.....	4	31	101,866	164,475	221,705	396,330 ²
Printing, publishing and allied in- dustries.....	1	1	1	1	1	1
Petroleum and coal products.....	1	1	1	1	1	1
Chemicals and chemical products.....	1	1	1	1	1	1
Miscellaneous manufacturing indus- tries.....	5	73	458,126	1,199,689	956,127	2,433,889
Totals, 1960.....	14	124	615,503	1,444,781	1,325,787	3,071,218

¹ Confidential; included in "Miscellaneous manufacturing industries".² Reported on a production basis.

2.—Concentration of Manufacturing Production in each Province, 1958 and 1959

Province or Territory	1958			1959		
	Number of Establish- ments Employing 500 or more Persons	Percentage of Total Number of Establish- ments in Province	Provincial Percentage of Number of Employees Accounted for by these Establish- ments	Number of Establish- ments Employing 500 or more Persons	Percentage of Total Number of Establish- ments in Province	Provincial Percentage of Number of Employees Accounted for by these Establish- ments
Newfoundland.....	2	0.3	30.9	2	0.3	32.1
Prince Edward Island..	—	—	—	—	—	—
Nova Scotia.....	7	0.5	30.7	7	0.5	28.9
New Brunswick.....	7	0.7	27.8	6	0.7	24.8
Quebec.....	132	1.1	35.0	136	1.2	34.6
Ontario.....	175	1.3	36.0	173	1.3	35.5
Manitoba.....	10	0.6	23.4	10	0.6	22.3
Saskatchewan.....	—	—	—	1	0.1	4.5
Alberta.....	12	0.7	21.0	13	0.7	21.8
British Columbia.....	22	0.5	24.4	28	0.7	26.2
Yukon and Northwest Territories.....	—	—	—	—	—	—
Canada.....	367	1.0	33.3	376	1.0	32.9

Subsection 1.—The Manufactures of the Atlantic Provinces

The Atlantic Provinces are of economic importance in a number of fields, such as pulp and paper, fish processing, sawmills, petroleum products and iron and steel. In *Newfoundland*, manufacturing production is dominated by the forest and fisheries resources. Pulp and paper is by far the most important industry, having shipments valued at \$67,985,619 in 1960, followed by fish products with shipments of \$19,676,901. These two industries accounted for 67.8 p.c. of the total production of the province. In *Prince Edward Island*, agriculture and fishing resources make butter and cheese, slaughtering and meat packing, and fish products the leading industries. *Nova Scotia* is renowned for its coal mines, its fisheries and its extensive forests and agricultural lands and it is also favoured with easy access by sea to the high-grade iron ore supply of Newfoundland. On these resources are based the leading manufacturing industries producing primary iron and steel products, fish products, pulp and paper, sawmill products and pasteurized dairy products. Ship-building and repair and petroleum refining together with industries producing railway rolling-stock, miscellaneous iron and steel products, cotton yarn and cloth and knitted goods, and aircraft add to the diversification of industry in the province. The forests of *New*

Brunswick give a leading place to pulp and paper and sawmilling industries in the province. Other important manufacturing and processing activities are based on fish and agricultural resources, and there are also a number of metal working industries producing heating and cooking apparatus, brass and copper products, etc.

Considering the Atlantic Provinces as an economic unit, pulp and paper was by far the leading industry in 1960, having factory shipments valued at \$196,802,066. Fish products, with shipments valued at \$95,637,301 were in second place. Other industries, in order of importance and with shipments exceeding \$30,000,000, were: petroleum refining, iron and steel mills, sawmills and sugar refineries.

Manufacturing production in the Atlantic area has not quite kept pace with that in the more industrialized provinces of Ontario, Quebec and British Columbia. This is indicated by a drop in the Atlantic Provinces' share of the Canadian total shipments from 4.5 p.c. in 1951 to 4.0 p.c. in 1960. In number of persons employed there was a decrease of 6.3 p.c. for the Atlantic Provinces but an increase of 2.9 p.c. for Canada as a whole. Salaries and wages paid increased 40.8 p.c. for the Atlantic Provinces compared with 58.9 p.c. for Canada and selling value of factory shipments increased 28.5 p.c. compared with 44.9 p.c. for Canada.

3.—Statistics of the Leading Industries of the Atlantic Provinces 1960, with Totals for 1959

NOTE.—Based on the revised Standard Industrial Classification (see text on pp. 623-624).

Province and Industry	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Newfoundland						
1 Pulp and paper mills ¹	2	3,082	16,858,626	28,773,938	34,503,473	67,985,619
2 Fish products.....	38	2,738	5,019,178	12,634,559	7,132,601	19,676,901
3 Breweries.....	3	196	796,528	1,100,376	4,133,589	5,314,484
4 Bakeries.....	14	296	852,483	1,760,734	1,688,186	3,544,578
5 Soft drink manufacturers.....	11	167	519,824	992,579	2,380,408	3,431,324
6 Printing and publishing.....	6	238	826,869	268,448	1,778,084	2,094,425
7 Sash and door and planing mills (excl. hardwood flooring).....	26	210	657,048	1,260,514	797,049	2,084,823
8 Sawmills (incl. shingle mills).....	428	266	332,854	1,155,140	763,907	1,964,856 ²
9 Biscuit manufacturers.....	3	141	363,576	608,284	715,459	1,335,630
10 Other leading industries ³	12	904	3,243,740	6,445,175	6,239,374	13,280,861
Totals, Leading Industries...	543	8,238	29,470,726	54,999,747	60,132,130	120,713,501
Totals, All Industries, 1960...	635	9,489	32,703,188	58,903,797	64,650,269	129,284,578
Totals, All Industries, 1959...	786	9,623	30,598,401	53,954,361	..	118,938,686
Prince Edward Island						
1 Butter and cheese plants.....	11	144	404,611	4,505,396	1,113,709	5,743,455
2 Fish products.....	18	433	640,967	3,228,512	905,755	4,155,252
3 Pasteurizing plants.....	13	81	227,098	793,170	465,118	1,308,072
4 Feed manufacturers.....	18	61	140,507	887,483	223,911	1,127,592
5 Sash and door and planing mills (excl. hardwood flooring).....	5	62	180,993	414,515	335,599	750,286
6 Sawmills (incl. shingle mills).....	57	86	98,586	341,388	217,311	571,103 ²
7 Poultry processors.....	3	54	85,512	352,123	214,740	568,622
8 Soft drink manufacturers.....	6	35	88,245	189,040	319,973	527,345
9 Other leading industries ⁴	11	559	1,633,921	9,740,577	3,830,693	13,586,675
Totals, Leading Industries...	142	1,515	3,500,440	20,452,204	7,626,809	28,338,402
Totals, All Industries, 1960...	184	1,806	4,254,917	21,220,060	8,690,360	30,231,361
Totals, All Industries, 1959...	174	1,721	3,774,651	19,618,122	..	27,264,874

For footnotes, see end of table, p. 655.

3.—Statistics of the Leading Industries of the Atlantic Provinces 1960, with Totals for 1959 —continued

Province and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Nova Scotia						
1 Iron and steel mills.....	3	4,364	21,240,322	30,732,630	32,925,542	66,461,271
2 Fish products.....	144	3,973	8,877,595	33,863,869	16,508,184	50,939,104
3 Pulp and paper mills.....	3	1,242	5,200,226	8,826,938	11,119,946	21,201,770
4 Sawmills (incl. shingle mills).....	462	2,052	3,442,137	9,454,892	6,200,329	15,984,836 ²
5 Pasteurizing plants.....	36	982	3,086,492	10,104,568	5,399,196	15,934,970
6 Shipbuilding and repair.....	16	2,029	7,683,674	5,629,293	8,665,131	14,604,235
7 Bakeries.....	77	987	2,507,136	4,861,712	4,632,529	9,872,625
8 Printing and publishing.....	27	932	3,550,390	1,606,831	6,591,825	8,290,638
9 Confectionery manufacturers.....	6	776	1,766,542	4,031,226	3,368,631	7,521,383
10 Knitting mills (other than hosiery).....	4	972	1,994,963	3,967,926	3,402,979	7,299,032
11 Sash and door and planing mills (excl. hardwood flooring).....	51	595	1,624,615	4,277,437	2,502,023	6,965,120
12 Soft drink manufacturers.....	27	286	906,958	1,810,736	3,623,410	5,599,551
13 Fruit and vegetable canners and preservers.....	18	586	1,198,177	3,552,304	1,954,539	5,578,510
14 Miscellaneous foods manufacturers.....	11	214	583,628	3,008,093	2,308,115	5,460,641
15 Feed manufacturers.....	16	119	305,392	3,931,383	1,313,899	5,304,229
16 Slaughtering and meat packing plants.....	5	112	325,947	2,379,666	643,543	3,028,529
17 Butter and cheese plants.....	12	167	410,634	2,267,042	647,455	2,999,225
18 Poultry processors.....	13	130	245,334	2,456,095	351,707	2,830,610
19 Miscellaneous machinery and equipment manufacturers.....	5	289	1,073,977	711,712	1,919,744	2,543,905
20 Miscellaneous wood industries, n.e.s. (incl. wood preservation).....	5	95	326,241	1,340,864	999,299	2,393,683
21 Ready-mix concrete manufacturers.....	6	73	244,276	1,414,766	555,952	2,026,286
22 Printing and bookbinding.....	41	310	913,152	663,882	1,319,846	2,006,200
23 Other leading industries ³	17	3,988	15,984,817	64,704,367	40,914,264	108,372,875
Totals, Leading Industries.....	1,005	25,273	83,492,525	205,598,232	157,869,088	373,219,768
Totals, All Industries, 1960.....	1,278	28,606	92,280,125	220,292,841	174,808,237	406,182,088
Totals, All Industries, 1959.....	1,258	28,216	88,680,606	223,044,388	..	399,341,645
New Brunswick						
1 Pulp and paper mills.....	8	4,179	20,725,618	45,466,314	53,346,327	107,614,677
2 Sawmills (incl. shingle mills).....	294	2,184	4,770,887	13,288,376	8,814,033	22,436,886 ²
3 Fish products.....	90	2,634	4,461,650	14,460,471	6,178,184	20,866,044
4 Slaughtering and meat packing plants.....	5	397	1,675,948	9,269,571	3,347,257	12,591,355
5 Miscellaneous food manufacturers.....	12	379	816,965	7,538,163	3,935,753	11,584,824
6 Bakeries.....	56	955	2,636,793	5,409,201	5,460,299	11,273,115
7 Shipbuilding and repair.....	3	1,474	4,619,846	2,654,598	5,401,922	8,218,864
8 Feed manufacturers.....	21	205	574,352	6,545,314	1,159,300	7,770,861
9 Sash and door and planing mills (excl. hardwood flooring).....	62	635	1,593,395	5,128,562	2,510,716	7,720,986
10 Butter and cheese plants.....	20	248	682,820	5,333,391	1,700,995	7,227,093
11 Pasteurizing plants.....	29	408	1,160,409	4,481,447	2,365,696	7,068,120
12 Major appliances (electric and non- electric), manufacturers of.....	3	584	1,878,468	2,198,006	3,754,267	6,147,212
13 Printing and publishing.....	19	684	2,370,573	1,112,691	4,044,063	5,233,859
14 Mixed fertilizers, manufacturers of.....	3	108	436,969	3,260,089	1,000,635	4,184,051
15 Soft drink manufacturers.....	24	228	690,478	1,279,300	2,542,719	3,982,590
16 Metal stamping, pressing and coat- ing industry.....	4	100	287,627	2,167,180	545,630	2,718,279
17 Biscuit manufacturers.....	3	211	508,781	1,217,018	1,063,259	2,309,801
18 Confectionery manufacturers.....	3	283	641,939	1,050,667	1,153,542	2,216,064
19 Shoe factories.....	3	287	649,888	990,502	1,117,087	2,148,378
20 Printing and bookbinding.....	26	342	1,184,508	693,858	1,374,849	2,116,462

For footnotes, see end of table.

3.—Statistics of the Leading Industries of the Atlantic Provinces 1960, with Totals for 1959 —concluded

	Province and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
		No.	No.	\$	\$	\$	\$
	New Brunswick—concluded						
21	Machine shops.....	16	245	864,906	516,924	1,559,579	2,020,410
22	Other leading industries ⁶	15	3,269	12,259,795	62,835,999	35,069,958	96,211,480
	Totals, Leading Industries...	719	20,039	65,492,615	196,897,642	147,446,070	353,661,411
	Totals, All Industries, 1960...	901	22,267	71,586,377	209,113,069	158,035,175	377,110,146
	Totals, All Industries, 1959...	900	20,921	63,871,690	178,022,837	..	325,414,733

¹Publication of these figures was authorized by the firms concerned.

²Reported on a production basis.

³Includes cement; gypsum products; ice cream; miscellaneous foods, *n.e.s.*; paints and varnishes; railway rolling-stock; ready-mix concrete; and slaughtering and meat packing.

⁴Includes cotton and jute bags; fruit and vegetable canners and preservers; mixed fertilizers; printing and publishing; and slaughtering and meat packing.

⁵Includes aircraft and parts; boilers and plate works; breweries; communication equipment; corrugated boxes; cotton yarn and cloth; fabricated structural metal; miscellaneous metal fabricating, *n.e.s.*; petroleum refining; railway rolling-stock; and wire and wire products.

⁶Includes breweries; brooms, brushes and mops; cement; cotton yarn and cloth; fruit and vegetable canners and preservers; miscellaneous metal fabricating, *n.e.s.*; petroleum refining; railway rolling-stock; and sugar refineries.

Subsection 2.—The Manufactures of Quebec

Quebec has long ranked as the second largest industrial province of Canada. The province has experienced a great industrial expansion during the past decade and a half, an expansion not confined to existing industrial areas but spreading to many towns and villages in the accessible areas and into new areas in the hinterland. In 1960, Quebec's output of \$7,206,096,003 represented over 30 p.c. of Canada's total selling value of factory shipments.

Several important factors have contributed to the development of industry in Quebec. Its geographic situation is extremely favourable, including as it does the great water highway of the St. Lawrence River with its excellent harbour at Montreal, 800 miles inland. Equally important are the province's abundant natural resources in forests, water power, minerals and agricultural lands. Pulp and paper, traditionally Quebec's major industry, was replaced in 1960 by smelting and refining which had an output valued at \$647,540,895. Pulp and paper mills, in second place, reported factory shipments amounting to \$601,216,411; the province is a principal world centre for the production of newsprint. Petroleum refining was in third place in 1960 with shipments valued at \$367,956,705; the largest agglomeration of petroleum refining facilities in Canada is located in the Montreal East area.

Quebec's industries are not as diversified as those of Ontario but several industries are predominant in that province. Of the forty leading industries in Canada in 1960, Quebec's share of the total value of shipments was 40 p.c. or over in the following: tobacco products manufacturers 84 p.c., cotton yarn and cloth mills 73 p.c., women's clothing factories 70 p.c., men's clothing factories 55 p.c., aircraft and parts manufacturers 55 p.c., synthetic textile mills 49 p.c., smelting and refining 43 p.c., and butter and cheese plants 40 p.c. Other industries in which Quebec predominated included shoe factories, manufacturers of pharmaceuticals and medicines, railway rolling-stock industry, shipbuilding and repair, manufacturers of electric wire and cable, and knitting mills.

Despite the slowing down of Canadian manufacturing production which began in the autumn of 1957 and continued throughout most of 1958, Quebec recorded a small increase of 2.0 p.c. in selling value of factory shipments between 1956 and 1958. In employment, however, there was a loss of 3.8 p.c. in the same period as compared with a loss of 4.7 p.c.

for Canada as a whole. Improvement took place during the following two years, an increase of 2.4 p.c. being recorded in the value of factory shipments in 1959 and one of 4.2 p.c. in 1960; the increases in employment amounted to 0.4 p.c. and 0.6 p.c., respectively. For the period 1957-60, Quebec recorded an increase of 7.8 p.c. in value of factory shipments compared with 7.0 p.c. for Canada as a whole, and the decrease in number of employees in that province was 3.4 p.c. compared with 4.8 p.c. for Canada.

4.—Statistics of the Leading Industries of Quebec 1960, with Totals for 1959

NOTE.—Based on the revised Standard Industrial Classification (see text on pp. 623-624).

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
1 Smelting and refining.....	10	11,936	63,136,982	444,351,332	172,790,283	647,540,895 ¹
2 Pulp and paper mills.....	54	26,882	139,622,200	249,979,281	305,912,529	601,216,411
3 Petroleum refining.....	6	2,799	16,760,298	275,069,147	82,835,193	367,956,705 ¹
4 Slaughtering and meat packing plants.....	63	5,737	23,638,381	186,204,804	45,074,287	231,550,856
5 Women's clothing factories.....	409	17,298	47,963,560	101,495,940	86,064,328	186,905,090
6 Tobacco products manufacturers..	16	6,686	28,361,119	97,654,844	86,255,281	183,612,393
7 Aircraft and parts manufacturers..	26	14,830	75,261,488	56,398,812	109,421,209	167,979,483 ¹
8 Cotton yarn and cloth mills.....	21	12,155	39,177,217	90,395,991	59,978,534	153,164,147
9 Men's clothing factories.....	286	14,256	38,181,946	53,040,587	60,674,918	144,001,971
10 Miscellaneous food manufacturers	90	3,151	11,590,415	71,285,271	47,445,258	119,719,826
11 Butter and cheese plants.....	429	2,489	6,330,444	103,162,453	13,147,313	118,571,124
12 Communications equipment man- ufacturers.....	26	12,214	57,924,520	31,586,360	87,721,770	112,605,500
13 Synthetic textile mills.....	35	9,779	32,784,062	54,777,038	53,057,248	108,813,217
14 Bakeries.....	888	11,235	32,354,909	50,151,856	52,977,937	106,156,938
15 Industrial chemicals, manufac- turers of.....	36	4,330	22,491,414	39,788,065	55,492,282	104,615,829
16 Miscellaneous machinery and equipment manufacturers.....	66	7,252	31,312,705	47,126,085	53,552,244	102,574,169
17 Railroad rolling-stock industry.....	6	8,706	36,213,699	59,901,565	35,955,264	97,649,681 ¹
18 Feed manufacturers.....	450	2,507	7,916,829	74,290,901	18,539,433	94,140,882
19 Metal stamping, pressing and coat- ing industry.....	127	5,667	23,797,545	43,692,933	47,900,383	93,165,352
20 Pasteurizing plants.....	178	4,174	15,242,353	62,116,349	28,611,209	92,412,998
21 Paper factories.....	146	11,668	29,315,291	48,783,114	46,139,898	90,872,820
22 Sawmills and shingle mills.....	1,311	8,128	18,209,337	61,579,717	34,967,340	87,984,948 ¹
23 Printing and publishing.....	84	7,352	34,325,659	26,582,505	60,721,937	87,750,065
24 Electric wire and cable, manufac- turers of.....	8	2,803	14,185,992	45,187,079	30,053,171	76,515,046
25 Pharmaceuticals and medicines, manufacturers of.....	90	3,636	14,866,363	29,956,539	52,632,040	74,960,290
26 Shipbuilding and repair.....	12	6,687	30,006,545	24,222,461	48,405,293	73,438,121 ¹
27 Household furniture industry.....	520	7,671	22,471,788	33,167,209	36,910,126	70,151,942
28 Soft drink manufacturers.....	177	2,784	10,449,836	18,947,554	47,960,190	68,189,893
29 Iron and steel mills.....	14	3,826	17,826,323	35,399,068	28,416,658	67,681,132
30 Printing and bookbinding.....	585	6,996	26,413,800	24,491,704	42,132,216	67,427,680
31 Breweries.....	5	2,427	13,482,918	16,165,935	48,766,814	65,209,757
32 Fabricated structural metal in- dustry.....	17	4,973	23,403,253	30,114,418	30,214,173	60,908,289 ¹
33 Knitting mills (other than hosiery)	92	5,647	14,487,163	37,768,080	23,064,470	60,528,369
34 Distilleries.....	7	1,797	8,367,280	17,150,370	40,350,945	59,874,344
35 Children's clothing industry.....	142	6,491	14,616,099	33,876,617	25,112,368	59,354,688
36 Plastics and synthetic resins, man- ufacturers of.....	9	2,172	11,611,663	28,445,887	29,208,771	59,047,032
37 Sash and door and planing mills (excl. hardwood flooring).....	660	5,141	14,350,438	34,054,120	23,289,284	58,394,375
38 Wire and wire products manufac- turers.....	49	3,721	16,146,857	32,685,939	23,521,247	57,259,779
39 Publishing only.....	197	2,433	10,346,179	18,197,188	36,362,250	54,563,133
40 Fruit and vegetable canners and preservers.....	108	2,814	7,135,845	31,536,423	18,474,179	49,666,071
Totals, Leading Industries	7,445	283,310	1,102,026,865	2,826,808,491	2,230,615,873	5,184,184,251
Totals, All Industries, 1960..	11,961	433,949	1,620,314,474	3,881,172,827	3,172,769,694	7,206,096,003
Totals, All Industries, 1959..	11,293	430,331	1,545,790,163	3,756,705,098	..	6,912,049,758

¹ Reported on a production basis.

Subsection 3.—The Manufactures of Ontario

The southwestern portion of Ontario is one of the world's major industrial areas. Here the proximity of raw materials, cheap hydro-electric power and a strategic location in relation to export markets, not only on this Continent but overseas, have been the decisive factors of development. Most of the manufacturing industries and most of the population of the province are located in this area, which has the inestimable advantage of bordering on the St. Lawrence-Great Lakes waterway system, giving access westward to the heart of the Continent and eastward to the shipping routes of the world. Furthermore, this same waterway is the source of most of Ontario's developed hydro-electric power.

Despite the great industrial progress made by other provinces, Ontario continues to maintain its predominance and in 1960 produced 49.2 p.c. of the nation's manufactured goods. A great increase of steel ingot capacity has been made possible by developments at the Steep Rock iron mines, northwest of Lake Superior. Large investments have gone into the construction of plant and equipment for a whole group of new products based on Alberta oil and gas flowing eastward by pipeline. Significant developments have taken place in synthetic rubber, synthetic textiles and industrial and consumer chemicals. Ontario has continued to gain in such traditional lines as motor vehicles, industrial machinery, and the manufacture of electrical appliances, furniture and other household equipment. The same may be said of other 'hard' goods like business and office machinery, and electrical industrial equipment. In fact, the manufacturers of Ontario now produce almost the complete range of products required by Canadian industry and the Canadian consumer.

Certain industries are carried on practically in this province alone. Of the forty leading industries in Canada in 1960, those dominated by Ontario's share of the total production were: rubber tire and tube manufacturers 99 p.c., motor vehicle manufacturers 98 p.c., motor vehicle parts and accessories manufacturers 97 p.c., manufacturers of electrical industrial equipment 85 p.c., iron and steel mills 79 p.c., manufacturers of major appliances (electrical and non-electrical) 75 p.c., paper converters, *n.e.s.* 68 p.c., fruit and vegetable canners and preservers 67 p.c., miscellaneous machinery and equipment manufacturers 65 p.c., miscellaneous metal fabricating industries 64 p.c., wire and wire products manufacturers 64 p.c., manufacturers of industrial chemicals 59 p.c., printing and book-binding 57 p.c., metal stamping, pressing and coating industry 57 p.c., distilleries 56 p.c., printing and publishing 48 p.c., and miscellaneous food industries 45 p.c. In addition, there are a number of medium-sized industries in which Ontario predominates.

As Ontario is a major producer of durable goods, it experiences wider fluctuations in manufacturing production than provinces producing mainly non-durable or consumer goods. As a result, the small economic downturn of 1954 was more keenly felt by Ontario manufacturers. Factory shipments in that year were 3.9 p.c. lower compared with a drop of 1.3 p.c. for Canada as a whole, and employment was 5.6 p.c. lower compared with 4.5 p.c. for Canada. Conversely, with the improvement during the following three years Ontario in 1957 reported an increase of 29.8 p.c. in factory shipments and 7.6 p.c. in employment over 1954 compared with increases of 26.4 p.c. and 7.2 p.c. for Canada as a whole. The minor depression of 1958 followed the usual pattern; Ontario manufacturers suffered an employment loss of 5.8 p.c. as compared with 5.1 p.c. for Canada as a whole and shipments were down 1.9 and 0.1 p.c., respectively. Again, the upturn in 1959 followed the expected trend and the increase in employment and value of shipments were both higher in Ontario

than for all Canada. In 1960, shipments for both Canada and Ontario moved up fractionally, but Ontario showed a loss of 2 p.c. in number of employees compared with a drop of 0.6 p.c. for Canada as a whole.

5.—Statistics of the Leading Industries of Ontario 1960, with Totals for 1959

NOTE.—Based on the revised Standard Industrial Classification (see text on pp. 623-624).

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
1 Motor vehicle manufacturers.....	11	26,688	145,550,519	608,974,444	330,019,595	952,330,161
2 Smelting and refining.....	9	11,377	56,453,920	353,517,280	248,432,649	622,604,877 ¹
3 Iron and steel mills.....	18	26,371	146,272,191	293,949,509	285,529,595	505,124,933
4 Pulp and paper mills.....	40	20,318	106,235,263	212,355,818	232,568,350	478,256,479
5 Slaughtering and meat packing plants.....	73	9,698	43,409,342	318,731,975	77,020,633	396,066,339
6 Petroleum refining.....	7	5,119	32,039,091	257,021,648	68,248,858	341,831,405 ¹
7 Motor vehicle parts and accessories manufacturers.....	89	14,730	71,087,552	148,611,432	123,889,726	278,936,947
8 Industrial chemicals, manufac- turers of.....	55	9,227	50,195,770	108,247,606	135,264,093	266,889,593
9 Miscellaneous machinery and equipment manufacturers.....	261	17,578	80,256,352	113,244,362	143,230,744	256,321,562
10 Fruit and vegetable canners and preservers.....	158	10,326	32,379,300	124,550,485	84,374,438	209,991,765
11 Electrical industrial equipment, manufacturers of.....	71	15,007	75,075,007	72,684,057	133,137,159	201,116,607
12 Metal stamping, pressing and coat- ing industry.....	268	12,021	55,444,278	96,026,405	100,389,759	199,219,538
13 Rubber tire and tube manufac- turers.....	8	8,004	38,260,867	89,044,498	63,839,090	173,434,805
14 Printing and publishing.....	288	14,102	68,792,088	45,197,687	127,053,802	173,409,971
15 Pastic and plastics.....	400	10,278	41,718,743	108,122,727	62,412,769	172,955,581
16 Miscellaneous food manufacturers.....	110	5,182	21,492,018	105,570,484	65,038,096	172,745,600
17 Major appliances (electric and non- electric) manufacturers of.....	29	7,604	35,062,394	81,180,657	67,484,656	152,880,780
18 Breweries.....	848	15,324	59,238,405	68,977,605	78,136,022	151,610,289
19 Printing and publishing.....	749	12,245	50,444,962	50,955,706	89,526,658	140,922,121
20 Agricultural implement industry.....	27	8,960	49,391,445	71,353,131	54,267,527	137,429,407
21 Miscellaneous metal fabricating industries.....	194	9,445	40,305,964	55,235,019	74,066,627	130,300,021
22 Food manufacturers.....	607	3,756	12,023,069	95,409,302	30,587,122	128,419,780
23 Wire and wire products manufac- turers.....	116	7,308	33,677,236	69,691,049	57,410,090	127,618,601
24 Soap and cleaning compounds, manufacturers of.....	67	3,336	16,782,755	49,621,041	72,650,135	124,388,734
25 Paper converters, etc.,.....	104	6,819	28,613,112	67,023,655	55,014,021	121,863,352
26 Lard, tallow, processing.....	10	1,078	4,883,445	100,474,361	11,051,485	111,790,935
27 Aircraft and parts manufacturers.....	36	8,896	40,204,903	49,330,049	58,552,937	110,138,374 ¹
28 Synthetic textile mills.....	15	5,068	21,911,509	45,102,069	60,999,789	108,464,605
29 Breweries.....	18	2,765	15,838,726	23,190,140	81,276,980	100,201,961
30 Communications equipment man- ufacturers.....	94	10,104	41,429,335	46,473,456	70,147,147	113,765,260
31 Fabricated structural metal in- dustry.....	33	6,347	31,117,745	50,776,276	53,025,158	104,722,373 ¹
32 Other chemical industries.....	170	2,800	16,598,153	50,101,366	49,758,267	100,987,199
33 Butter and cheese plants.....	307	2,705	8,492,316	81,550,279	15,489,254	99,184,173
34 Distilleries.....	10	2,183	10,229,063	32,232,864	68,029,500	96,712,907
35 Household furniture industry.....	622	9,894	33,065,736	46,213,294	48,925,415	95,729,517
36 Flour mills.....	32	1,634	7,109,215	68,514,631	19,968,560	89,130,354
37 Pharmaceuticals and medicines, manufacturers of.....	87	4,194	19,507,748	23,850,564	64,280,011	87,586,778
38 Miscellaneous electrical products, manufacturers of.....	77	5,704	23,456,440	37,705,626	47,517,876	84,628,915
39 Confectionery manufacturers.....	90	5,154	15,719,612	40,624,718	41,727,610	83,257,419
40 Paint and varnish manufacturers.....	73	2,943	13,181,075	41,499,286	39,347,505	81,379,056
Totals, Leading Industries...	6,366	364,732	1,681,207,254	4,398,985,991	3,609,690,578	8,180,309,114
Totals, All Industries, 1960...	13,387	603,467	2,585,676,553	6,141,903,570	5,303,807,608	11,685,675,652
Totals, All Industries, 1959...	12,657	615,672	2,566,167,073	6,189,731,229	..	11,667,901,764

¹ Reported on a production basis.

Subsection 4.—The Manufactures of the Prairie Provinces

In the Prairie Provinces the leading industries have traditionally been those based on agricultural resources—grain-growing, cattle raising and dairying areas. Next in importance, generally, are industries providing for the more necessary needs of the resident population such as slaughtering and meat packing plants, petroleum refining, bakeries, printing and publishing, etc. The extensive railway services require large shops for the maintenance of rolling-stock, especially in the Winnipeg area.

In the Prairie Provinces the nature of development varies from one province to another. Alberta has moved to the forefront, especially since 1950. There, recent emphasis has been on manufactures connected with the expanding oil and gas industries. Chemicals, particularly petrochemicals, have made striking gains and now embrace various rayon intermediates and polythene plastics, as well as fertilizers and the manufacture of other inorganic products such as caustic soda and chlorine. Agriculture-based products still rank high in the province, as do such structural materials as steel, concrete products and hydraulic cement. Sizable gains have also been made by food-processing plants.

In Manitoba, the early commercial centre of the mid-West, water power, forest and, more recently, mineral resources have given rise to a diversity of manufactured products, although slaughtering and meat packing remains in first place and other agriculture-based products rank high among the industries of the province.

Developments in Saskatchewan have continued along more or less traditional lines. Although petroleum refining has been in first place in value of production since 1950, output of this industry has not changed greatly during the past five years. In this province, the food-processing industries are of major importance and have recorded the greatest increases.

Considering the Prairie Provinces as an economic unit, 4,327 establishments reporting in 1960 furnished employment to 94,414 persons who received \$360,367,605 in salaries and wages. They shipped goods valued at the factory at \$1,972,888,407 and spent \$1,159,897,195 for materials. Slaughtering and meat packing, with shipments valued at \$344,320,212 was the leading industry. Petroleum refining with \$234,442,045 ranked second, flour mills with \$96,646,870 third and products of pasteurizing plants with \$69,964,926 fourth. These four industries accounted for about 38 p.c. of the total value of factory shipments of the Prairie Provinces.

6.—Statistics of the Leading Industries of the Prairie Provinces 1960, with Totals for 1959

NOTE.—Based on the revised Standard Industrial Classification (see text on pp. 623-624).

Province and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Manitoba						
1 Slaughtering and meat packing plants.....	13	2,910	13,366,772	98,082,865	26,107,234	124,622,590
2 Petroleum refining.....	3	666	3,234,125	34,200,664	13,247,097	51,356,945 ¹
3 Railway rolling-stock industry....	5	3,510	13,954,172	18,055,553	16,773,561	35,466,660 ¹
4 Men's clothing factories.....	51	2,850	6,762,065	13,406,572	9,993,764	23,553,082
5 Pasteurizing plants.....	16	1,001	3,878,054	14,065,923	6,763,748	21,207,516
6 Fabricated structural metal in- dustry.....	4	888	4,489,437	4,969,948	15,828,180	20,904,861 ¹
7 Flour mills.....	5	472	1,598,788	17,009,640	3,001,614	20,185,102
8 Miscellaneous food manufacturers.	22	667	2,169,392	14,411,581	6,299,934	20,159,635

For footnote, see end of table, p. 661.

6.—Statistics of the Leading Industries of the Prairie Provinces 1960, with Totals for 1959—continued

Province and Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	■
Manitoba—concluded						
9 Printing and publishing.....	71	1,862	6,616,075	5,116,603	13,260,853	18,556,911
10 Bakeries.....	156	1,832	6,311,532	7,802,930	9,570,917	17,958,111
11 Pulp and paper mills.....	3	562	2,762,281	5,633,997	10,422,453	17,425,028
12 Butter and cheese plants.....	55	488	1,390,367	11,271,935	2,768,038	17,294,966
13 Printing and bookbinding.....	89	1,545	6,337,931	5,245,846	10,104,217	15,480,799
14 Women's clothing factories.....	25	1,563	4,349,673	8,575,284	6,867,363	15,461,583
15 Metal stamping, pressing and coat- ing industry.....	33	1,093	4,214,244	7,763,585	7,315,038	15,412,426
16 Breweries.....	6	620	3,059,438	3,079,463	11,294,163	14,481,634
17 Household furniture industry.....	94	1,069	3,617,949	6,592,475	5,416,992	12,088,119
18 Aircraft and parts manufacturers	3	1,185	4,925,314	4,458,081	6,079,813	10,687,581 ¹
19 Feed manufacturers.....	50	258	907,108	7,012,876	2,910,330	10,130,768
20 Miscellaneous metal fabricating industries.....	10	528	2,263,877	5,099,455	4,254,221	10,093,725
21 Other furniture industries.....	20	853	2,835,867	5,414,716	4,308,680	9,846,860
22 Agricultural implement industry..	14	537	1,964,444	5,194,537	4,182,562	9,510,176
23 Soft drink manufacturers.....	20	351	1,312,250	2,492,264	4,782,362	7,477,061
24 Poultry processors.....	18	425	734,497	5,691,818	1,219,190	6,956,926
25 Concrete products manufacturers..	16	626	2,511,077	3,426,096	2,968,224	6,828,389
26 Paint and varnish manufacturers..	5	268	994,396	3,795,798	2,814,646	6,613,889
27 Cotton and jute bag industry.....	3	193	682,310	4,796,965	1,768,803	6,547,156
28 Miscellaneous machinery and equipment manufacturers.....	13	514	2,154,745	2,608,327	3,641,166	6,103,123
29 Paper converters, n.e.s.....	7	233	682,393	2,741,538	3,343,162	5,966,183
30 Biscuit manufacturers.....	4	336	1,069,976	2,521,329	3,016,446	5,672,444
31 Corrugated box manufacturers....	3	244	951,779	3,279,380	2,061,503	5,421,455
32 Other leading industries ²	4	1,127	5,292,681	10,739,457	13,978,711	27,461,096
Totals, Leading Industries...	841	31,286	117,394,999	347,557,501	236,464,985	596,932,890
Totals, All Industries, 1960...	1,592	42,339	154,263,811	419,583,431	306,434,692	738,457,346
Totals, All Industries, 1959...	1,522	43,007	153,613,079	421,542,217	..	742,183,196
Saskatchewan						
1 Petroleum refining.....	6	1,032	5,877,144	52,524,069	18,512,054	75,338,011 ¹
2 Slaughtering and meat packing plants.....	10	1,257	6,180,349	38,278,783	10,375,057	49,015,122
3 Flour mills.....	7	714	3,070,244	31,046,934	9,999,048	41,575,309
4 Butter and cheese plants.....	43	584	1,720,739	16,332,563	3,475,325	20,161,826
5 Pasteurizing plants.....	20	906	3,227,782	10,119,640	5,790,150	16,258,831
6 Bakeries.....	100	1,053	3,527,279	4,561,015	6,440,430	11,290,995
7 Breweries.....	5	376	1,803,359	2,739,142	7,834,684	10,755,724
8 Printing and publishing.....	88	1,223	4,257,348	2,362,950	7,618,602	10,093,071
9 Poultry processors.....	21	358	808,211	6,314,841	1,279,899	7,649,745
10 Soft drink manufacturers.....	27	270	945,728	1,902,430	3,610,423	5,728,211
11 Metal stamping, pressing and coat- ing industry.....	10	348	1,298,353	3,176,347	2,188,883	5,433,798
12 Sash and door and planing mills (excl. hardwood flooring).....	26	398	1,352,198	2,258,250	2,072,555	4,393,630
13 Sawmills incl. single mills.....	232	441	815,698	2,207,465	1,525,493	3,821,719 ¹
14 Miscellaneous metal fabricating industries.....	6	105	503,869	2,416,156	1,237,478	3,665,549
15 Feed manufacturers.....	12	111	368,783	2,275,611	846,893	3,214,823
16 Ready-mix concrete manufac- turers.....	6	76	317,222	1,756,839	983,150	2,798,059
17 Concrete products manufacturers..	19	196	701,463	1,093,415	1,433,961	2,691,494
18 Other leading industries ²	3	758	3,538,624	18,887,872	17,723,926	40,587,365
Totals, Leading Industries...	641	10,366	40,314,393	200,254,322	102,948,011	314,473,282
Totals, All Industries, 1960...	887	12,918	49,764,266	215,404,848	119,776,935	344,773,261
Totals, All Industries, 1959...	840	12,407	46,532,277	212,568,673	..	344,084,883

For footnotes, see end of table.

6.—Statistics of the Leading Industries of the Prairie Provinces 1960, with Totals for 1959—concluded

Province and Industry	Estab-lish-ments	Em-ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Alberta						
1 Slaughtering and meat packing plants.....	21	3,838	17,854,141	137,899,556	32,508,892	170,682,500
2 Petroleum refining.....	11	1,684	9,822,082	72,965,276	30,816,811	107,747,089 ¹
3 Flour mills.....	8	663	2,493,798	25,212,787	9,531,650	34,886,459
4 Industrial chemicals, manufacturers of.....	11	1,148	5,782,103	10,174,565	21,175,611	33,103,165
5 Pasteurizing plants.....	36	1,942	6,836,998	22,225,118	9,790,934	32,498,579
6 Pulp and paper mills.....	3	605	3,388,347	11,172,765	14,674,669	27,620,144
7 Butter and cheese plants.....	81	588	1,660,228	20,140,078	2,852,213	23,254,832
8 Bakeries.....	164	2,096	6,807,509	9,239,466	12,039,295	21,812,471
9 Fabricated structural metal industry.....	7	1,172	5,167,596	10,046,311	9,202,166	19,359,533 ¹
10 Plastics and synthetic resins, manufacturers of.....	4	498	2,913,804	7,962,748	10,999,994	19,216,317
11 Printing and publishing.....	76	1,651	6,223,520	4,663,049	14,237,684	19,034,526
12 Sash and door and planing mills (excl. hardwood flooring).....	105	1,438	4,732,670	10,606,787	7,493,197	18,371,978
13 Breweries.....	6	536	2,591,428	4,160,489	13,301,375	17,705,373
14 Sawmills (incl. shingle mills).....	360	1,591	3,581,839	9,387,164	6,755,103	16,546,004 ¹
15 Ready-mix concrete manufacturers.....	12	466	2,231,807	7,557,332	4,828,905	12,695,412
16 Cement manufacturers.....	3	426	2,260,703	1,331,225	8,947,200	11,892,305
17 Concrete products manufacturers..	47	782	3,005,148	4,462,327	7,104,988	11,702,591
18 Feed manufacturers.....	98	351	1,229,513	8,034,695	3,362,358	11,626,229
19 Machine shops.....	68	1,027	4,533,270	3,995,644	7,134,259	11,036,878
20 Men's clothing factories.....	9	925	2,502,659	5,570,041	4,803,631	9,931,788
21 Poultry processors.....	11	465	1,072,896	7,939,973	1,663,310	9,738,821
22 Metal stamping, pressing and coating industry.....	25	502	1,982,410	5,354,616	4,011,546	9,416,288
23 Miscellaneous food manufacturers.....	12	249	949,143	5,266,985	3,466,140	8,839,069
24 Glass manufacturers.....	4	696	2,576,208	3,398,463	4,824,496	8,244,295
25 Other leading industries ⁴	8	2,392	10,476,538	42,518,490	20,835,063	62,340,175
Totals, Leading Industries ...	1,190	27,741	112,676,358	451,285,950	266,361,490	729,303,821
Totals, All Industries, 1960 ...	1,848	39,157	156,339,528	524,908,916	353,197,544	889,657,800
Totals, All Industries, 1959 ...	1,750	39,016	149,969,677	516,032,439	..	869,404,244

¹ Reported on a production basis.² Includes cement; iron and steel mills; and smelting and refining.³ Includes cement; electric wires and cables; smelting and refining; and steel pipe and tube mills.⁴ Includes railway rolling-stock; smelting and refining; steel pipe and tube mills; and sugar refineries.

Subsection 5.—The Manufactures of British Columbia

British Columbia, with factory shipments totalling \$1,937,000,000 in 1960, ranked third among the provinces in manufacturing production. Forest resources, fisheries, minerals and electric power have given a broad base and fairly wide diversification to its industrial development. British Columbia holds the dominant position among the provinces in the production of wood products, its output in 1960 making up 52 p.c. of the Canadian total. Sawmilling, pulp and paper, veneer and plywood, and sash, door and planing mills ranked first, second, fourth and fifth, respectively, among the province's leading industries. Third in importance was petroleum refining which moved up from seventh place in 1953, and in sixth place was fish products, based principally on the estuarial salmon fisheries. The province accounted for approximately 40 p.c. of the output of the fish processing industry in 1960 and is mainly responsible for Canada's position as a major fish-exporting nation.

Many new developments have been taking place in areas far removed from older established industrial centres. Lines of communication and transportation are extending into formerly locked interior communities to tap a vast new potential, and factories and

plants in remote sections are drawing greater value in employment and dollars from natural resources. However, the growth in this province has been considerably slower than for Canada as a whole. Value of factory shipments in 1960 was 37.9 p.c. higher than in 1951 compared with an increase of 44.9 p.c. for all Canada. On the other hand the number of employees in manufacturing industries in British Columbia increased 7.3 p.c. over the period, as against 2.9 p.c. in Canada as a whole. Also the consumption of 8,100,000,000 kwh. of electric power by manufactures during 1960 marked a steady upward climb of 200 p.c. during the decade. British Columbia ranks second among the provinces in available water power resources and its hydraulic development, which at the end of 1960 totalled 3,700,326 hp., was exceeded only by Quebec and Ontario.

7.—Statistics of the Leading Industries of British Columbia 1960, with Totals for 1959

NOTE.—Based on the revised Standard Industrial Classification (see text on pp. 623-624).

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost at Plant of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
1 Sawmills (incl. shingle mills).....	1,222	26,701	107,945,077	209,557,535	168,362,162	381,227,057 ¹
2 Pulp and paper mills.....	14	8,695	49,334,620	94,437,237	148,646,660	256,731,375
3 Petroleum refining.....	7	1,379	8,440,519	78,556,066	22,617,965	106,688,286 ¹
4 Veneer and plywood mills.....	18	6,034	26,725,331	47,799,853	34,827,342	82,891,001
5 Sash and door and planing mills (excl. hardwood flooring).....	202	3,522	14,273,103	48,278,250	21,845,110	71,522,221
6 Fish products.....	43	2,555	9,202,043	35,527,000	20,237,633	67,564,005
7 Slaughtering and meat packing plants.....	17	1,579	7,350,613	49,003,258	11,984,871	60,846,392
8 Pasteurizing plants.....	60	2,059	8,552,943	26,802,938	14,510,599	42,118,617
9 Miscellaneous food manufacturers.....	42	852	3,350,884	29,394,459	11,567,730	41,252,259
10 Industrial chemicals, manufac- turers of.....	16	1,417	6,908,077	17,295,496	23,173,039	39,423,566
11 Fruit and vegetable canners and preservers.....	49	1,955	5,532,323	23,331,486	12,077,751	34,325,786
12 Printing and publishing.....	88	3,222	15,584,617	7,151,463	26,834,422	34,270,725
13 Bakeries.....	322	3,432	11,970,874	13,544,281	17,547,621	32,033,308
14 Shipbuilding and repair.....	20	2,603	13,084,458	7,063,620	17,891,008	25,297,951 ¹
15 Metal stamping, pressing and coat- ing industry.....	48	1,059	5,520,896	12,583,793	11,180,871	23,266,306
16 Feed manufacturers.....	43	641	2,543,017	17,266,767	4,884,711	22,644,390
17 Miscellaneous machinery and equipment manufacturers.....	46	1,555	7,321,198	8,030,269	12,865,057	21,160,580
18 Breweries.....	7	594	2,858,845	4,548,567	15,514,168	20,532,982
19 Fabricated structural metal in- dustry.....	5	1,225	6,511,628	9,431,125	8,663,781	18,603,723 ¹
20 Household furniture industry.....	180	1,294	4,576,668	6,878,242	6,729,262	13,749,589
21 All other leading industries ²	5	6,259	32,992,841	112,796,196	73,692,755	193,528,244
Totals, Leading Industries	2,444	78,722	350,600,575	859,277,901	685,654,527	1,592,678,363
Totals, All Industries, 1960	3,995	100,507	439,368,651	1,026,998,973	853,836,400	1,936,917,630
Totals, All Industries, 1959	3,891	100,947	420,629,945	974,483,335	..	1,872,399,845

¹ Reported on a production basis.

² Includes sugar refineries; corrugated boxes; and smelting and refining.

Section 2.—Manufacturing Industries in Urban Centres

Table 8 indicates the extent to which the manufacturing industries are concentrated in urban centres and shows, by province, the proportion of the selling value of factory shipments contributed by cities and towns having shipments of over \$1,000,000 each. In the more highly industrialized provinces of Ontario and Quebec such cities and towns accounted for 82 p.c. and 94 p.c., respectively, of the total manufactures of those provinces in 1959, compared with 77 p.c. and 94 p.c., respectively, in 1958. In the Atlantic Provinces and British Columbia, where sawmilling, fish products and dairying are leading industries, the proportions were 68 p.c. and 48 p.c., respectively in 1959, showing little change compared

with the previous year. In the Prairie Provinces, manufacturing is confined largely to a few urban centres. Although there has been some recent tendency to establish new industry in smaller urban centres, for Canada as a whole the percentage of manufactures accounted for by urban centres having shipments of over \$1,000,000 was 80.5 in 1955 and 81.9 in 1959.

8.—Urban Centres, Each with Selling Value of Factory Shipments of Over \$1,000,000, Number of Establishments and Total Shipments in these Centres as a Percentage of the Provincial Total, by Province, 1959, and Totals for Canada, 1957-59.

Province or Territory	Urban Centres with Shipments of Over \$1,000,000 Each	Establishments Reporting in Urban Centres with Shipments of Over \$1,000,000	Shipments of Urban Centres having \$1,000,000 or Over	Total Shipments of Each Province	Shipments of Urban Centres having \$1,000,000 or Over as a Percentage of Total Shipments in the Province
	No.	No.	\$	\$	
Newfoundland.....	4	125	75,608,838	119,007,053	63.5
Prince Edward Island.....	2	54	18,371,144	27,670,896	66.4
Nova Scotia.....	24	464	248,296,043	398,663,678	62.3
New Brunswick.....	16	322	253,382,108	325,478,717	77.8
Quebec.....	179	7,927	6,452,597,849	6,916,199,594	93.3
Ontario.....	181	8,873	9,595,925,711	11,668,460,562	82.2
Manitoba.....	14	1,101	649,218,610	743,509,352	87.3
Saskatchewan.....	11	425	285,846,684	347,320,321	82.3
Alberta.....	17	978	616,575,488	887,316,797	69.5
British Columbia.....	27	1,967	890,177,308	1,875,142,125	47.5
Yukon and Northwest Territories..	—	—	—	2,832,386	—
Canada, 1959.....	475	22,236	19,085,999,783	23,311,601,481	81.9
1958.....	503	22,808	17,603,972,221	22,163,186,308	79.4
1957.....	499	23,542	17,886,715,270	22,183,594,311	80.6

9.—Principal Statistics of the Manufacturing Industries of the Six Leading Manufacturing Cities, Selected Years, 1939-59

City and Year	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Gross Value of Products ¹
	No.	No.	\$	\$	\$	\$
Montreal, Que.....						
1939.....	2,501	105,315	114,602,118	7,667,848	254,188,246	483,246,583
1946.....	3,785	173,507	291,381,617	14,740,538	602,667,823	1,147,945,203
1949.....	4,136	184,779	399,943,526	16,487,474	847,444,669	1,596,713,694
1953.....	4,398	193,129	544,284,191	18,428,249	1,067,911,378	2,042,662,785
1955.....	4,379	176,998	529,339,811	19,553,134	1,021,717,306	1,963,367,235
1957.....	4,268	183,996	611,657,486	23,540,996	1,214,443,559	2,288,255,169
1958.....	4,121	173,582	601,773,312	21,742,163	1,189,356,004	2,266,191,996
1959.....	3,951	173,279	626,970,086	22,086,472	1,219,183,717	2,329,633,902
Toronto, Ont.....						
1939.....	2,885	98,702	122,553,435	7,306,351	240,532,281	482,532,331
1946.....	3,632	145,556	247,298,288	12,238,707	549,256,912	1,036,939,790
1949.....	4,005	158,562	368,510,524	17,003,151	837,148,440	1,579,186,450
1953.....	3,781	154,251	478,086,271	18,968,416	980,873,073	1,875,747,249
1955.....	3,497	134,235	448,775,761	18,788,747	916,493,539	1,732,099,123
1957.....	3,312	132,356	482,758,834	20,936,055	961,000,335	1,832,080,726
1958.....	3,185	123,789	479,767,394	20,855,472	973,581,141	1,825,714,816
1959.....	3,073	123,963	503,765,998	21,048,608	1,013,054,770	1,875,649,225
Hamilton, Ont.....						
1939.....	461	31,512	39,563,423	5,267,577	70,829,034	152,746,340
1946.....	501	45,951	80,959,432	10,434,888	150,977,835	308,033,098
1949.....	546	54,665	137,641,333	17,728,214	285,180,403	563,982,920
1953.....	566	60,451	201,515,979	22,408,131	385,515,852	824,407,315
1955.....	588	55,202	200,311,361	24,807,502	395,047,070	844,835,085
1957.....	562	57,095	237,883,530	28,217,591	502,608,132	1,031,430,829
1958.....	548	50,269	219,874,661	24,757,682	452,298,965	943,304,365
1959.....	525	52,820	244,629,848	31,285,574	547,666,412	1,114,137,316

For footnote, see end of table, p. 664.

9.—Principal Statistics of the Manufacturing Industries in the Six Leading Manufacturing Cities, Selected Years, 1939-59—concluded

City and Year	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Gross Value of Products ¹
	No.	No.	\$	\$	\$	\$
Vancouver, B.C..... 1939	829	17,957	22,382,192	1,397,159	56,565,511	101,267,243
1946	1,071	31,408	55,960,984	3,075,458	138,045,068	270,165,166
1949	1,225	33,536	78,793,345	4,392,716	204,642,985	358,620,526
1953	1,216	33,822	108,896,725	5,448,266	255,906,780	448,591,543
1955	1,330	34,683	120,488,180	5,757,268	276,666,483	489,181,449
1957	1,280	35,666	138,199,452	6,578,883	305,719,965	540,766,123
1958	1,217	32,765	134,591,149	6,301,610	292,447,555	522,600,098
1959	1,173	32,911	139,700,859	6,446,971	275,378,121	517,685,702
Windsor, Ont..... 1939	222	17,729	25,938,890	1,673,417	63,907,106	122,474,320
1946	256	30,889	60,315,436	3,748,979	138,788,813	244,925,148
1949	283	34,561	94,304,627	5,373,123	271,392,923	494,162,203
1953	338	37,511	140,481,193	7,559,592	402,209,586	682,273,319
1955	334	25,654	101,810,378	4,975,650	186,275,443	374,512,418
1957	318	29,377	122,169,670	6,568,182	290,073,160	533,531,623
1958	305	22,295	103,237,036	5,725,545	220,362,294	421,681,449
1959	292	23,355	115,427,371	6,212,951	221,872,387	442,513,286
Winnipeg, Man..... 1939	618	17,571	20,717,273	1,491,823	44,873,043	81,024,272
1946	756	26,730	42,354,650	2,625,075	121,531,306	206,381,007
1949	860	28,687	58,604,162	3,166,077	143,827,270	255,006,806
1953	860	28,230	76,008,218	3,266,587	156,860,845	300,186,774
1955	873	26,392	75,281,647	3,541,450	152,575,494	291,084,611
1957	856	27,039	83,809,725	4,069,453	166,092,377	314,229,185
1958	820	25,867	85,034,125	3,683,565	169,747,263	324,232,314
1959	794	25,864	88,968,328	3,840,792	173,177,732	343,540,671

¹ Net value is derived from gross value by deducting cost of materials, fuel and electricity. In 1952 gross value of products was replaced by selling value of factory shipments; see text on p. 615.

10.—Principal Statistics of the Manufacturing Industries in the Six Leading Metropolitan Areas, 1958 and 1959

Year and Metropolitan Area	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
1958						
Montreal.....	4,970	243,352	888,661,516	57,777,260	2,120,992,095	3,933,627,051
Toronto.....	4,725	204,253	808,287,382	35,798,441	1,593,968,023	3,103,952,432
Hamilton.....	695	54,303	233,588,935	25,959,576	481,748,921	999,232,306
Vancouver.....	1,746	52,878	217,676,330	14,459,176	517,097,840	941,502,899
Winnipeg.....	1,049	37,314	126,203,759	8,400,546	333,274,999	576,557,849
Windsor.....	371	23,728	108,968,717	6,096,954	232,716,430	445,779,732
1959						
Montreal.....	4,835	244,338	933,414,520	55,519,682	2,191,453,245	3,957,603,873
Toronto.....	4,668	210,230	869,883,232	37,690,165	1,714,348,045	3,305,803,366
Hamilton.....	679	57,156	259,549,352	32,683,938	580,911,831	1,176,000,076
Vancouver.....	1,719	53,704	228,465,778	16,121,290	515,405,782	950,924,014
Winnipeg.....	1,035	37,808	136,050,705	9,366,980	354,277,797	625,927,070
Windsor.....	356	24,952	122,527,608	6,645,486	235,487,487	472,319,599

11.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of \$5,000,000 or Over and with Three or More Establishments, 1959

NOTE.—Statistics for urban centres with three or more establishments cannot be published when one establishment has 75 p.c. or two establishments 90 p.c. of the total value of shipments.

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Newfoundland—						
St. John's.....	95	2,626	7,890,322	595,237	13,153,178	30,566,576
Prince Edward Island—						
Charlottetown.....	33	705	2,024,317	216,035	9,697,518	13,837,767
Nova Scotia—						
Amherst.....	24	1,122	3,526,465	419,376	5,096,036	12,887,719
Dartmouth.....	18	609	2,084,294	107,805	1,934,045	5,118,423
Halifax.....	129	5,489	18,202,353	1,141,622	31,343,603	65,155,709
Lunenburg.....	15	697	1,925,755	127,307	4,506,375	7,537,878
New Glasgow.....	29	714	2,101,883	332,566	3,519,351	7,068,742
Sydney.....	43	4,758	21,552,254	4,451,100	44,251,722	80,127,378
Trenton.....	8	1,040	3,872,657	422,517	8,402,001	14,272,856
Truro.....	43	1,246	2,827,615	229,817	6,779,996	12,811,831
Yarmouth.....	28	847	1,888,569	187,481	5,016,934	9,425,202
New Brunswick—						
Fredericton.....	39	982	2,644,518	234,071	4,801,799	10,354,179
Lancaster.....	11	869	3,254,279	803,531	9,977,550	22,600,331
Moncton.....	58	2,711	9,571,628	702,034	29,246,830	44,844,497
Saint John.....	90	3,461	11,381,549	1,389,625	41,801,176	66,655,659
Quebec—						
Acton Vale.....	17	1,242	2,954,231	205,191	11,121,474	16,513,321
Beauharnois.....	23	1,682	7,074,460	3,965,810	14,603,493	33,255,068
Bedford.....	11	708	1,990,843	90,405	2,209,141	5,881,109
Berthierville.....	16	588	1,506,045	143,959	3,009,777	6,067,344
Cap de la Madeleine.....	41	2,491	8,228,371	1,641,107	26,377,239	47,170,849
Chicoutimi.....	39	534	1,634,930	129,197	4,066,395	7,144,980
Coaticook.....	18	1,083	2,693,012	143,007	4,305,710	7,947,937
Cowansville.....	11	1,543	4,385,573	333,157	8,490,822	17,038,702
Drummondville.....	58	5,885	17,682,281	1,611,872	37,597,490	79,765,051
Farnham.....	21	1,090	3,288,010	221,774	6,672,385	13,277,578
Fort Chambly.....	8	530	1,504,979	76,174	2,450,088	5,285,046
Giffard.....	16	533	1,472,967	103,900	2,641,433	5,345,196
Granby.....	80	5,953	18,881,597	1,004,325	46,642,272	85,148,699
Grand Mère.....	29	2,258	7,560,302	1,452,951	12,339,769	28,131,529
Hull.....	51	3,351	12,956,795	2,656,984	31,067,285	57,578,708
Huntingdon.....	13	617	2,157,484	206,756	6,847,919	10,664,184
Jacques Cartier.....	27	1,126	3,951,861	271,088	8,175,244	16,454,152
Joliette.....	55	2,124	6,296,402	697,105	12,149,756	24,231,695
Jonquière.....	18	542	1,961,151	101,837	2,549,526	7,585,820
Lachine.....	82	12,536	54,987,612	2,172,963	91,208,270	195,931,710
Lachute.....	23	695	2,086,033	283,916	5,205,619	8,886,927
La Prairie.....	20	703	2,633,730	634,004	2,752,474	8,994,184
LaSalle.....	50	5,675	23,913,173	1,835,594	68,944,286	139,516,655
L'Assomption.....	14	671	2,037,623	140,223	5,156,154	8,123,220
Lennoxville.....	14	376	1,335,506	205,839	3,055,469	5,985,701
Lévis.....	30	523	1,349,081	94,297	2,798,059	5,812,060
Longueuil.....	31	3,297	14,407,924	435,085	15,550,711	33,993,025
Louiseville.....	20	1,187	3,173,473	320,681	4,932,525	10,366,594
Magog.....	34	2,264	6,021,074	719,852	30,818,839	40,747,251
Marieville.....	15	510	1,372,575	88,197	6,012,154	8,248,855
Mégantic.....	25	660	1,477,136	140,023	2,478,257	5,067,055
Montmagny.....	37	1,350	3,904,566	270,291	9,601,121	17,627,157
Mount Royal.....	54	6,138	25,132,066	774,657	78,808,021	133,746,368
Montreal.....	3,951	173,279	626,970,086	22,086,472	1,219,183,717	2,329,633,902
Montreal East.....	43	7,130	34,756,687	19,958,847	472,691,317	606,095,358
Montreal North.....	63	1,271	4,609,568	236,342	10,065,255	19,097,699
Outremont.....	64	2,143	7,961,825	240,694	15,640,990	31,780,727
Plessisville.....	27	1,004	3,393,993	174,662	6,164,165	11,965,876
Pointe aux Trembles.....	16	1,081	4,170,348	2,276,073	34,962,760	51,591,110
Princeville.....	18	695	1,927,706	122,105	9,012,577	13,291,007
Quebec.....	421	15,579	51,026,239	6,102,353	111,968,466	225,141,195
Richmond.....	13	731	1,913,028	69,211	4,666,542	7,655,959
St. Hyacinthe.....	84	4,174	11,346,470	793,684	32,547,930	54,755,559
St. Jean.....	82	5,349	17,750,144	1,201,057	34,378,439	68,986,382

11.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of \$5,000,000 or Over and with Three or More Establishments, 1959—continued

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Quebec—concluded						
St. Jérôme.....	65	3,520	10,454,094	850,577	20,427,463	38,264,350
St. Lambert.....	25	1,088	3,547,639	150,237	6,273,221	12,896,412
St. Laurent.....	98	17,495	83,179,151	2,238,289	89,471,852	226,231,599
Ste. Marie.....	23	1,005	2,839,913	281,461	7,176,847	13,454,007
St. Michel.....	99	2,125	7,760,426	546,842	17,444,672	29,715,713
St. Rémi.....	16	480	1,149,201	69,694	3,529,584	7,879,769
Ste. Thérèse.....	39	1,270	3,834,688	351,382	9,351,731	17,721,961
Shawinigan.....	47	5,589	25,393,138	9,722,869	49,368,498	115,524,010
Sherbrooke.....	116	7,051	21,223,941	1,526,417	51,445,363	96,548,853
Terrebonne.....	18	648	1,804,710	110,709	3,504,972	7,460,877
Trois Rivières.....	82	8,143	30,616,531	8,259,182	57,099,833	127,634,158
Valleyfield.....	43	3,354	10,820,300	1,364,972	25,236,990	55,444,956
Verdun.....	68	1,540	4,636,916	127,962	6,018,838	14,208,187
Victoriaville.....	56	2,662	7,349,760	335,708	15,222,634	25,699,832
Waterloo.....	20	692	1,873,085	131,504	3,122,470	6,265,750
Westmount.....	34	1,783	6,571,357	373,717	9,453,910	21,196,948
Ontario—						
Acton.....	18	977	3,196,315	263,198	7,750,642	13,588,187
Ajax.....	35	1,737	6,567,397	326,475	17,351,219	30,140,325
Arnprior.....	20	944	3,023,911	171,226	3,998,335	12,327,415
Aurora.....	21	999	3,495,669	165,009	8,717,715	20,235,161
Barrie.....	39	1,993	7,517,551	489,101	20,445,358	38,250,271
Belleville.....	69	3,341	12,430,957	1,629,009	15,790,996	41,478,838
Bowmanville.....	16	835	3,211,144	229,259	6,053,154	13,181,070
Brampton.....	44	2,133	8,122,161	477,907	12,572,873	30,081,031
Brantford.....	169	11,166	43,195,278	2,327,345	86,800,769	166,113,010
Brockville.....	46	3,086	11,985,805	668,153	42,967,799	73,142,098
Chatham.....	68	3,737	15,001,780	1,393,073	77,799,770	120,751,505
Cobourg.....	34	1,123	4,347,196	270,976	11,541,630	25,692,653
Collingwood.....	25	1,638	5,171,013	198,985	8,065,322	15,992,128
Cornwall.....	57	5,963	24,124,382	5,718,430	40,608,687	96,423,254
Dundas.....	37	1,080	3,925,268	185,130	5,245,920	10,664,659
Dunnville.....	16	1,273	3,066,326	183,522	8,114,891	15,890,267
Eastview.....	24	437	1,726,139	112,095	5,518,460	9,647,100
Elmira.....	22	759	2,770,312	247,144	7,555,347	14,352,940
Fort Erie.....	26	892	3,431,494	151,222	10,674,210	18,778,994
Fort William.....	67	3,192	14,323,707	4,504,182	31,806,258	66,446,187
Galt.....	97	7,283	26,129,556	1,083,940	44,168,036	94,779,381
Gananoque.....	16	845	3,426,675	235,531	5,965,192	11,528,537
Georgetown.....	22	1,290	5,156,129	291,193	9,868,624	18,352,625
Goderich.....	17	463	1,644,955	218,135	4,724,943	8,555,793
Grimsby.....	20	522	1,364,991	89,439	2,980,805	5,580,275
Guelph.....	111	6,789	26,032,809	1,361,015	48,324,850	93,879,740
Hamilton.....	525	52,820	244,629,848	31,285,574	547,666,412	1,114,137,316
Hanover.....	24	1,041	3,138,790	126,481	5,229,144	9,696,666
Hespeler.....	14	982	3,499,407	268,947	6,491,135	12,602,628
Ingersoll.....	30	1,080	3,788,708	690,619	12,888,473	22,360,168
Kingston.....	77	5,420	23,340,835	1,906,856	41,337,408	96,597,656
Kitchener.....	203	16,104	60,931,182	2,832,536	135,485,240	241,327,377
Leaside.....	44	7,904	33,475,226	1,363,432	64,629,198	115,111,374
Lindsay.....	40	1,770	5,697,532	414,519	8,186,013	20,917,588
Listowel.....	12	475	1,367,136	97,606	3,190,955	5,947,928
London.....	277	15,175	58,321,477	2,955,875	108,168,645	229,749,046
Long Branch.....	21	1,023	4,193,932	238,811	10,388,209	22,134,140
Markham.....	13	243	820,563	65,085	2,345,330	5,386,777
Meaford.....	20	553	1,402,951	111,264	2,666,731	5,327,308
Merritton.....	105	6,251	26,811,189	1,341,315	33,532,941	75,318,697
Midland.....	28	1,202	3,710,771	146,764	9,715,042	17,407,736
Milton.....	15	928	4,081,683	603,897	6,888,306	14,586,706
Mimico.....	36	938	3,576,372	223,450	6,513,314	13,166,792
Napanee.....	17	504	1,836,598	147,417	4,674,012	9,067,511
New Liskeard.....	15	475	1,707,231	99,243	3,306,235	5,916,267
Newmarket.....	23	1,056	3,602,798	179,857	7,326,069	14,077,864
New Toronto.....	42	7,613	37,405,697	2,442,567	103,044,226	197,631,640
Niagara Falls.....	78	4,303	17,959,893	4,920,598	28,939,295	71,295,324
North Bay.....	31	608	2,345,859	173,282	3,846,116	7,441,460
Oakville.....	49	5,694	27,735,568	1,570,588	175,172,246	274,502,645
Orillia.....	56	2,320	7,914,303	513,660	10,558,113	22,831,949
Ottawa.....	280	9,882	37,677,016	2,641,767	59,645,311	138,791,217

11.—Statistics of Manufactures of Municipalities, each with Selling Value of Factory Shipments of \$5,000,000 or Over and with Three or More Establishments, 1959—concluded

Province and Municipality	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$	\$	\$	\$
Ontario—concluded						
Owen Sound.....	43	2,163	7,144,498	326,792	11,507,984	23,575,092
Paris.....	30	1,157	3,510,500	167,415	6,634,430	12,885,081
Pembroke.....	23	1,529	4,749,953	230,372	9,334,406	19,382,908
Perth.....	27	805	2,359,109	142,185	4,616,337	9,913,633
Peterborough.....	89	9,323	43,720,646	1,539,087	71,471,654	142,453,045
Port Arthur.....	57	2,404	10,028,492	2,272,206	22,471,842	48,323,155
Freston.....	43	2,841	10,384,505	373,176	16,513,286	32,547,716
Renfrew.....	24	586	1,821,803	140,801	3,417,222	6,455,717
Richmond Hill.....	17	277	982,777	108,529	3,290,009	5,590,552
Riverside.....	15	490	2,218,059	126,483	6,216,592	9,950,700
St. Catharines.....	105	6,251	26,811,189	1,341,315	33,532,941	75,318,697
St. Mary's.....	14	737	2,823,989	1,708,100	8,117,751	17,609,511
St. Thomas.....	52	2,505	9,250,784	468,618	18,222,313	39,981,339
Sarnia.....	54	6,994	37,701,009	25,934,202	208,869,241	319,286,463
Sault Ste. Marie.....	47	9,210	48,379,041	8,256,009	107,052,756	211,792,006
Simcoe.....	29	1,437	5,940,309	469,614	31,810,013	44,453,261
Smith's Falls.....	31	807	2,551,544	197,790	4,204,366	11,929,000
Stratford.....	73	3,277	11,321,595	528,323	22,399,589	42,272,268
Sudbury.....	62	1,196	4,517,658	591,104	7,949,810	16,913,150
Swansea.....	14	874	3,959,627	207,172	8,351,615	15,769,442
Thorold.....	21	1,575	6,995,865	1,975,415	14,109,609	28,931,903
Tillsonburg.....	27	1,095	3,237,043	343,159	18,495,164	24,097,450
Timmins.....	22	371	1,163,794	130,749	2,685,113	5,296,726
Toronto.....	3,073	123,963	503,765,998	21,048,608	1,013,056,770	1,875,649,225
Trenton.....	28	1,679	5,764,154	786,919	11,132,954	24,435,366
Wallaceburg.....	26	1,889	7,197,796	1,099,442	9,743,122	22,474,463
Waterloo.....	63	3,192	11,680,300	615,244	21,747,703	59,993,156
Welland.....	47	2,842	10,786,021	894,258	16,196,947	35,854,798
Weston.....	59	2,545	10,506,595	512,933	16,282,879	33,452,712
Windsor.....	292	23,355	115,427,371	6,212,951	221,872,387	442,513,286
Wingham.....	17	440	1,285,658	100,848	3,270,061	6,053,349
Woodstock.....	59	4,329	16,235,024	2,053,292	45,811,931	78,696,506
Manitoba—						
Brandon.....	38	856	3,071,414	393,584	14,095,290	21,230,494
East Kildonan.....	22	510	1,722,518	170,617	4,191,606	8,055,498
St. Boniface.....	95	5,293	21,343,758	2,712,334	133,270,513	179,562,931
St. James.....	59	2,777	10,460,838	383,289	16,176,315	37,013,121
Winnipeg.....	794	25,364	88,968,328	3,840,792	173,177,732	343,540,671
Saskatchewan—						
Moose Jaw.....	42	1,372	5,232,852	1,272,281	32,381,369	45,319,840
Prince Albert.....	32	886	3,391,150	262,839	14,775,483	23,279,674
Regina.....	142	3,613	14,788,493	2,931,349	55,801,121	100,373,094
Saskatoon.....	130	3,401	13,723,249	1,393,760	66,678,438	99,181,864
Alberta—						
Calgary.....	350	10,781	44,364,963	3,126,400	157,344,936	250,483,305
Edmonton.....	406	13,241	50,105,221	2,627,630	162,466,153	268,548,781
Grande Prairie.....	13	462	1,173,987	146,997	2,385,261	5,082,514
Lethbridge.....	56	1,245	4,204,629	305,793	10,022,326	20,380,079
Medicine Hat.....	41	1,067	4,057,682	527,640	14,680,823	29,646,440
Red Deer.....	33	399	1,262,214	129,247	5,209,895	8,986,607
British Columbia—						
Chilliwack.....	21	454	1,149,396	127,484	3,626,037	5,937,382
Dawson Creek.....	17	197	773,521	213,100	3,971,626	7,573,845
Kelowna.....	34	882	3,055,215	218,014	5,345,078	10,855,082
Nanaimo.....	25	372	1,462,500	129,184	2,421,328	5,425,044
New Westminster.....	97	5,646	23,431,099	1,883,111	53,749,427	106,812,426
North Vancouver.....	70	2,566	12,143,170	1,516,023	12,105,979	38,220,826
Port Moody.....	8	724	3,277,058	1,183,085	20,680,288	28,569,355
Prince George.....	57	827	3,128,400	281,410	10,860,060	16,428,679
Vancouver.....	1,173	32,911	139,700,859	6,446,971	275,378,121	517,685,702
Vernon.....	26	375	1,280,595	98,512	2,687,432	5,121,383
Victoria.....	182	3,805	15,758,362	779,575	23,877,622	56,046,452

CHAPTER XV.—CAPITAL EXPENDITURES, CONSTRUCTION AND HOUSING*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

This Chapter provides data on the capital expenditures made by all sectors of the Canadian economy on construction and on machinery and equipment, together with summaries of other available statistics for the construction industry. Section 1 shows the amounts spent by each of the various industrial or economic sectors. Section 2 brings together a number of summaries of related series on construction activity—value of work performed by type of structure, value of materials used, salaries and wages paid and numbers employed, contracts awarded and building permits issued. Government aid to house-building and construction of dwelling units are covered in Section 3.

Section 1.—Capital Expenditures on Construction and on Machinery and Equipment

Capital expenditures† in all sectors of the economy amounted to \$8,109,000,000 in 1961, a reduction of 4.9 p.c. from the 1960 total of \$8,262,000,000. The over-all decline resulted from a 9.8-p.c. decrease in the purchases of machinery and equipment—from \$2,809,000,000 in 1960 to \$2,535,000,000 in 1961—partially offset by a 2.2-p.c. increase in construction expenditures from \$5,453,000,000 in 1960 to \$5,574,000,000 in 1961. Total capital outlays increased each year throughout most of the decade after 1946 and reached a record level in 1957. Since that time the level of capital spending has been declining slightly. It is expected that this trend will be reversed in 1962, in which year capital expenditure intentions are 6 p.c. above the 1961 level.

In constant (1957) dollars, the total 1961 capital program was 11 p.c. below the peak of 1957, declines having occurred in volume of each of the four years following 1957. It is evident from Table 1, that there have been variations in the generally downward trend in the construction and machinery and equipment components. A continuing high proportion of Canada's gross national product is still being devoted to the expansion, modernization or renewal of the nation's production facilities, although this proportion has been declining in recent years following the peak of 1957.

* Except where otherwise noted, prepared in the Operations Section, Business Finance Division, Dominion Bureau of Statistics.

† Capital expenditure figures for 1960 and earlier years are final and those for 1961 are preliminary and subject to revision at a later date. Capital expenditures for 1963 and 1964 as well as intentions for 1962 appear in greater detail in the publication *Private and Public Investment in Canada, Outlook 1962*, available from the Queen's Printer (Catalogue No. C-51-162).

1.—Capital Expenditures on Construction and on Machinery and Equipment, in Current and Constant (1957) Dollars, 1952-61

NOTE.—Actual expenditures 1952-60; preliminary actual 1961.

Year	Capital Expenditures						Total Expenditure as Percentage of Gross National Product	
	Construction		Machinery and Equipment		Total			
	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars	Current Dollars	Constant 1957 Dollars
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	p.c.	p.c.
1952.....	3,434	3,941	2,057	2,411	5,491	6,352	22.9	24.0
1953.....	3,756	4,174	2,220	2,550	5,976	6,724	23.9	24.4
1954.....	3,737	4,149	1,984	2,245	5,721	6,394	23.0	23.9
1955.....	4,169	4,512	2,075	2,305	6,244	6,817	23.0	23.5
1956.....	5,273	5,445	2,761	2,888	8,034	8,333	26.3	26.4
1957.....	5,784	5,784	2,933	2,933	8,717	8,717	27.3	27.3
1958.....	5,830	5,865	2,534	2,467	8,364	8,332	25.4	25.9
1959.....	5,709	5,557	2,708	2,590	8,417	8,147	24.1	24.5
1960.....	5,453	5,248	2,809	2,636	8,262	7,884	23.0	23.3
1961.....	5,574	5,408	2,535	2,341	8,109	7,749	22.0	22.4

CAPITAL EXPENDITURES AS PERCENTAGE OF GROSS NATIONAL PRODUCT, CURRENT AND CONSTANT (1957) DOLLARS, 1952-61

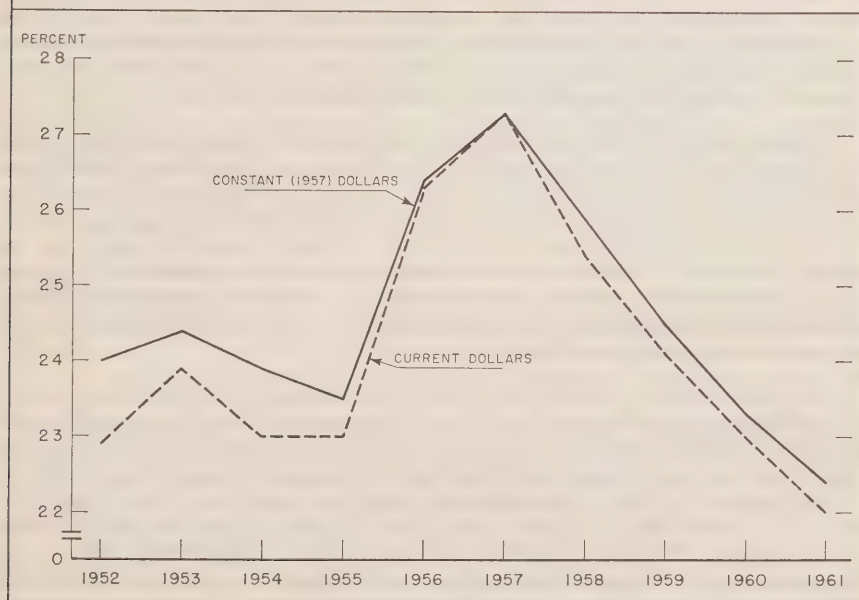


Table 2 shows the extent of the emphasis on housing and non-residential construction in 1961 as compared with the two previous years.

2.—Capital Expenditures and Percentage Distribution, by Type, 1959-61

NOTE.—Actual expenditures 1959 and 1960; preliminary actual 1961.

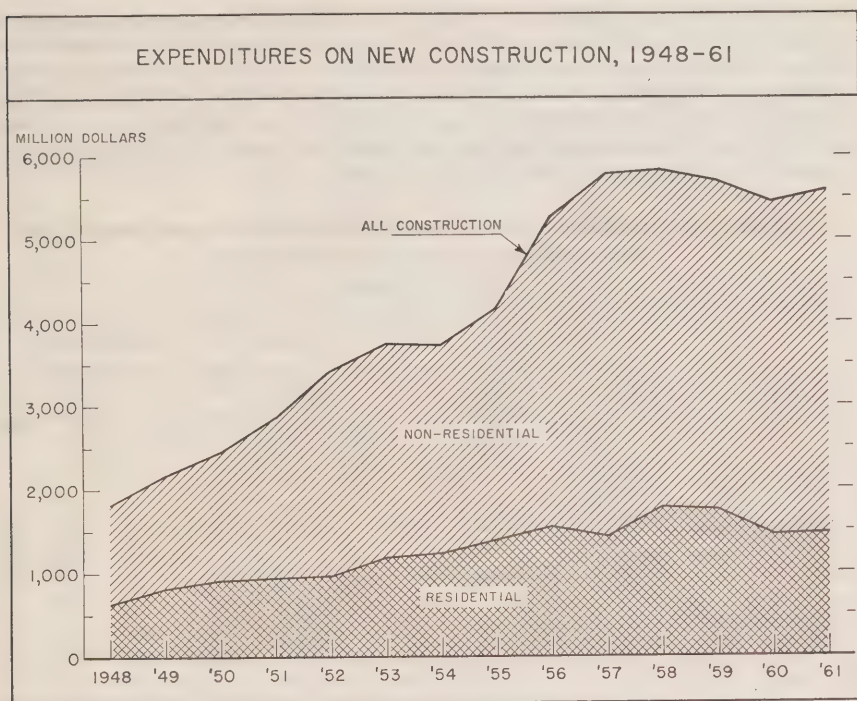
Type	Capital Expenditures			Distribution		
	1959	1960	1961	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000	p.c.	p.c.	p.c.
Construction.....	5,709	5,453	5,574	67.8	66.0	68.7
Housing.....	1,752	1,456	1,467	20.8	17.6	18.1
Non-residential.....	3,957	3,997	4,107	47.0	48.4	50.6
Machinery and Equipment.....	2,708	2,809	2,535	32.2	34.0	31.3
Totals.....	8,417	8,262	8,109	100.0	100.0	100.0

In 1961, the mining industry as a whole increased outlays on new construction by \$68,000,000. This increase was accounted for largely by heavier expenditures on the construction of natural gas processing plants in Alberta—part of the Alberta-California natural gas export program—which amounted to \$77,709,000 compared with \$18,565,000 in 1960. Construction outlays for iron ore mining facilities also increased in 1961, amounting to \$67,959,000 compared with \$52,866,000 in the previous year.

Capital outlays of the manufacturing industries as a whole declined \$152,900,000 in 1961 from the level of \$1,177,400,000 reached in 1960. This decline was spread throughout most of the component industries with noticeable decreases in the primary iron and steel industry and the petroleum refining industry. Only the chemical industry showed a marked increase, capital outlays of which rose from \$107,000,000 in 1960 to \$124,000,000 in 1961. The heavier expenditure was largely in the area of industrial chemicals.

Capital outlays for utilities—including transportation, communication and storage facilities, as well as such public utilities as gas, water and electricity—declined from \$1,772,700,000 in 1960 to \$1,663,600,000 in 1961. The decrease was mainly attributable to declines of \$115,000,000 in railway transport and \$28,800,000 in telephones. Partially offsetting the declines in the area of utilities were increased expenditures on oil and gas pipeline construction. The major projects were the gas pipelines constructed in Alberta as part of the Alberta-California gas export program (which were in addition to the gas processing plants mentioned above) and oil pipelines constructed in British Columbia which were substantially completed in 1961.

The trade sector of the economy, consisting of wholesale and retail firms as well as automobile service stations owned by Canada's integrated petroleum companies, made capital outlays of \$329,100,000 compared with outlays of \$381,000,000 in the previous year. All trade sectors except department stores recorded decreased expenditures in 1961; the increase recorded by department stores was mainly accounted for by the expansion of discount department outlets, a recent development in retail merchandising and indications are that this type of merchandising will continue to increase. A discount department store is generally defined as a retail store selling a wide range of merchandise with reduced customer services; reduced services on the average permit reduced prices to the consumer.



Continuing the upward trend of recent years, institutional services—including hospitals, schools, universities, churches and welfare institutions—recorded an advance of \$42,100,000 in capital outlays in 1961 over the level of \$572,900,000 achieved in 1960. This increase was concentrated on additional facilities for universities and hospitals, universities increasing from \$87,300,000 to \$103,600,000 and hospitals from \$155,900,000 to \$181,100,000. Expenditures on universities include those for private as well as provincial government institutions, and hospital expenditures include those for provincial, municipal, religious and private hospitals for both mental and general treatment services.

Capital outlays by government departments increased slightly from \$1,273,700,000 in 1960 to \$1,328,400,000 in 1961. Government departments, as defined for capital expenditure purposes, include that part of government activity, excluding institutions, generally dependent on tax revenue for financial support; one of the major activities of government, involving expenditures by federal, provincial and municipal governments, is the road, highway and bridge program. In 1961, all three levels of government increased their capital outlays; the Federal Government, with additional outlays of \$42,100,000, accounted for 75 p.c. of the total increase and brought its spending up to \$395,800,000; the spending of the provincial governments reached \$564,800,000, an increase of \$7,600,000; and the spending of municipal governments amounted to \$367,800,000, an increase of \$5,000,000.

Capital spending in Canada as a whole in 1961 declined 1.9 p.c. from the previous year but there was considerable variation in the spending of the different provinces. Newfoundland experienced a substantial increase of 22.6 p.c. as a result of heavier expenditures

by iron mining companies in Labrador. Alberta and British Columbia recorded less dramatic increases of 4.2 p.c. and 2.3 p.c., respectively. Capital spending in Prince Edward Island and Nova Scotia remained unchanged and each of the other five provinces experienced some decline. In Quebec, Ontario and Saskatchewan the declines were small at 2.7 p.c., 3.4 p.c. and 2.5 p.c., respectively; the greater declines of 9.4 p.c. and 13.3 p.c., respectively, recorded by New Brunswick and Manitoba were mainly attributable to the near completion of major industrial projects in these provinces in 1960.

3.—Summary of Capital and Repair Expenditures, by Economic Sector, 1960 and 1961

NOTE.—Actual expenditures 1960; preliminary actual 1961.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total
Agriculture and fishing.....1960	107	443	550	77	143	225	184	591	775
.....1961	108	413	521	78	147	225	186	560	746
Forestry.....1960	27	27	54	18	30	48	45	57	102
.....1961	26	23	49	17	27	44	43	50	93
Mining, quarrying and oil wells.....1960	303	97	400	27	86	113	330	183	513
.....1961	371	80	451	28	82	110	399	162	561
Manufacturing.....1960	335	843	1,178	124	547	671	459	1,390	1,849
.....1961	268	756	1,024	120	532	652	388	1,288	1,676
Utilities.....1960	1,074	698	1,772	269	444	713	1,343	1,142	2,485
.....1961	1,098	566	1,664	281	435	716	1,379	1,001	2,380
Construction.....1960	14	116	130	4	132	136	18	248	266
.....1961	14	118	132	4	134	138	18	252	270
Housing.....1960	1,456	—	1,456	457	—	457	1,913	—	1,913
.....1961	1,467	—	1,467	484	—	484	1,951	—	1,951
Trade (wholesale and retail)..1960	165	216	381	40	48	88	205	264	469
.....1961	147	182	329	37	45	82	184	227	411
Finance, insurance and real estate.....1960	243	36	279	16	4	20	259	40	299
.....1961	265	42	307	17	4	21	282	46	328
Commercial services.....1960	58	157	215	13	47	60	71	204	275
.....1961	53	168	221	14	46	60	67	214	281
Institutional services.....1960	500	73	573	59	12	71	559	85	644
.....1961	536	79	615	64	13	77	600	92	692
Government departments....1960	1,171	103	1,274	327	56	383	1,498	159	1,657
.....1961	1,221	108	1,329	322	55	377	1,543	163	1,706
Totals.....1960	5,453	2,809	8,262	1,431	1,554	2,985	6,884	4,363	11,247
.....1961	5,574	2,535	8,109	1,466	1,520	2,986	7,040	4,055	11,095

Details of some of the above economic sectors are given in Table 4. The value of construction work performed, together with statistics of contracts awarded and building permits issued in recent years, is covered in Section 2 of this Chapter. Housing is treated separately in Section 3.

4.—Capital and Repair Expenditures for Certain Economic Sectors, 1960 and 1961

NOTE.—Actual expenditures 1960; preliminary actual 1961.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
MANUFACTURING									
Foods and beverages.....1960	52.7	99.2	151.9	14.2	55.7	69.9	66.9	154.9	221.8
1961	51.5	94.5	146.0	14.1	56.5	70.6	65.6	151.0	216.6
Tobacco products.....1960	1.7	5.2	6.9	1.2	3.3	4.5	2.9	8.5	11.4
1961	1.7	5.9	7.6	0.9	3.3	4.2	2.6	9.2	11.8
Rubber.....1960	6.9	17.0	23.9	1.0	8.1	9.1	7.9	25.1	33.0
1961	3.0	14.9	17.9	0.8	8.9	9.7	3.8	23.8	27.6
Leather.....1960	1.3	2.6	3.9	0.4	2.2	2.6	1.7	4.8	6.5
1961	0.7	3.0	3.7	0.7	2.6	3.3	1.4	5.6	7.0
Textile.....1960	6.0	21.1	27.1	3.4	17.6	21.0	9.4	38.7	48.1
1961	6.0	20.2	26.2	3.6	18.7	22.3	9.6	38.9	48.5
Clothing and knitting mills..1960	2.3	10.0	12.3	1.2	4.3	5.5	3.5	14.3	17.8
1961	2.1	7.9	10.0	1.0	3.7	4.7	3.1	11.6	14.7
Wood.....1960	12.6	28.6	41.2	5.5	28.9	34.4	18.1	57.5	75.6
1961	12.6	26.2	38.8	4.8	24.5	29.3	17.4	50.7	68.1
Furniture and fixtures.....1960	3.0	4.6	7.6	0.9	2.3	3.2	3.9	6.9	10.8
1961	0.8	3.0	3.8	0.9	2.1	3.0	1.7	5.1	6.8
Paper and allied industries...1960	35.1	131.2	166.3	9.2	93.9	103.1	44.3	225.1	269.4
1961	33.8	125.9	159.7	9.3	99.3	108.6	43.1	225.2	268.3
Printing, publishing and allied industries.....1960	7.4	21.7	29.1	2.3	6.8	9.1	9.7	28.5	38.2
1961	7.7	21.7	29.4	1.8	6.2	8.0	9.5	27.9	37.4
Primary metals.....1960	51.3	142.9	194.2	20.0	145.1	165.1	71.3	288.0	359.3
1961	33.1	90.1	123.2	18.1	135.6	153.7	51.2	225.7	276.9
Metal fabricating.....1960	12.2	34.5	46.7	5.2	25.4	30.6	17.4	59.9	77.3
1961	7.7	25.8	33.5	4.6	23.1	27.7	12.3	48.9	61.2
Machinery.....1960	8.4	14.6	23.0	3.0	9.5	12.5	11.4	24.1	35.5
1961	5.4	15.9	21.3	2.7	8.3	11.0	8.1	24.2	32.3
Transportation equipment...1960	16.5	31.9	48.4	10.2	31.1	41.3	26.7	63.0	89.7
1961	11.5	28.4	39.9	9.7	28.6	38.3	21.2	57.0	78.2
Electrical products.....1960	7.6	24.2	31.8	3.8	16.3	20.1	11.4	40.5	51.9
1961	7.9	22.1	30.0	3.7	15.1	18.8	11.6	37.2	48.8
Non-metallic mineral products.....1960	15.7	33.5	49.2	4.0	38.6	42.6	19.7	72.1	91.8
1961	12.1	28.2	40.3	3.4	41.2	44.6	15.5	69.4	84.9
Petroleum and coal products.1960	51.9	7.8	59.7	26.0	4.0	30.0	77.9	11.8	89.7
1961	30.6	4.2	34.8	27.2	3.8	31.0	57.8	8.0	65.8
Chemical and chemical products.....1960	34.9	72.1	107.0	10.8	48.2	59.0	45.7	120.3	166.0
1961	34.6	89.4	124.0	9.9	45.0	54.9	44.5	134.4	178.9
Miscellaneous.....1960	7.2	13.6	20.8	2.1	5.9	8.0	9.3	19.5	28.8
1961	5.4	11.9	17.3	2.3	5.6	7.9	7.7	17.5	25.2
Capital items charged to operating expenses.....1960	—	126.4	126.4	—	—	—	—	126.4	126.4
1961	—	117.1	117.1	—	—	—	—	117.1	117.1
Totals, Manufacturing...1960	334.7	842.7	1,177.4	134.4	547.2	671.6	459.1	1,389.9	1,849.0
1961	268.2	756.3	1,024.5	119.5	532.1	651.6	387.7	1,388.4	1,676.1

4.—Capital and Repair Expenditures for Certain Economic Sectors, 1960 and 1961—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total
UTILITIES									
Electric power.....1960	371.5	161.3	532.8	43.4	30.7	74.1	414.9	192.0	606.9
.....1961	412.6	123.9	536.5	52.8	29.8	82.6	465.4	153.7	619.1
Gas distribution.....1960	56.5	6.4	62.9	6.6	1.6	8.2	63.1	8.0	71.1
.....1961	50.5	8.9	59.4	5.7	1.5	7.2	56.2	10.4	66.6
Railway transport.....1960	202.7	98.6	301.3	135.9	172.7	308.6	338.6	271.3	609.9
.....1961	146.1	40.2	186.3	144.9	172.1	317.0	291.0	212.3	503.3
Urban transit systems.....1960	19.8	6.9	26.7	4.2	18.4	22.6	24.0	25.3	49.3
.....1961	17.5	4.9	22.4	4.1	18.8	22.9	21.6	23.7	45.3
Water transport and services.....1960	38.4	51.4	92.8	6.8	17.5	24.3	45.2	71.9	117.1
.....1961	42.1	57.1	99.2	6.2	15.7	21.9	48.3	72.8	121.1
Motor transport.....1960	6.3	41.7	48.0	1.5	57.2	58.7	7.8	98.9	106.7
.....1961	5.1	34.2	39.3	1.4	47.3	48.7	6.5	81.5	88.0
Grain elevators.....1960	12.9	2.7	15.6	6.0	2.6	8.6	18.9	5.3	24.2
.....1961	16.1	2.7	18.8	5.3	2.3	7.6	21.4	5.0	26.4
Telephones.....1960	161.3	195.2	356.5	39.4	92.7	132.1	200.7	287.9	488.6
.....1961	133.3	194.4	327.7	36.7	98.5	135.2	170.0	292.9	462.9
Broadcasting.....1960	7.9	15.1	23.0	0.6	2.7	3.3	8.5	17.8	26.3
.....1961	4.9	13.4	18.3	0.6	3.2	3.8	5.5	16.6	22.1
Water systems.....1960	79.1	5.9	85.0	18.7	1.1	19.8	97.8	7.0	104.8
.....1961	72.9	3.4	76.3	18.1	1.3	19.4	91.0	4.7	95.7
Other utilities.....1960	117.8	95.6	213.4	6.1	46.7	52.8	123.9	142.3	266.2
.....1961	196.4	70.2	266.6	5.2	44.2	49.4	201.6	114.4	316.0
Capital items charged to operating expenses.....1960	—	14.7	14.7	—	—	—	—	14.7	14.7
.....1961	—	12.8	12.8	—	—	—	—	12.8	12.8
Totals, Utilities.....1960	1,074.2	698.5	1,772.7	269.2	443.9	713.1	1,343.4	1,142.4	2,485.8
.....1961	1,097.5	566.1	1,663.6	281.0	434.7	715.7	1,378.5	1,000.8	2,379.3
TRADE									
Wholesale.....1960	34.0	32.8	66.8	5.0	7.9	12.9	39.0	40.7	79.7
.....1961	30.3	26.1	56.4	4.9	6.7	11.6	35.2	32.8	68.0
Chain stores.....1960	29.4	39.6	69.0	6.5	5.4	11.9	35.9	45.0	80.9
.....1961	16.4	32.2	48.6	6.5	5.4	11.9	22.9	37.6	60.5
Independent stores.....1960	43.2	76.7	119.9	11.9	19.2	31.1	55.1	95.9	151.0
.....1961	38.3	62.2	100.5	11.8	18.9	30.7	50.1	81.1	131.2
Department stores.....1960	16.2	14.1	30.3	5.3	3.2	8.5	21.5	17.3	38.8
.....1961	26.7	15.5	42.2	4.0	3.8	7.8	30.7	19.3	50.0
Automotive trade.....1960	42.1	33.3	75.4	11.3	12.7	24.0	53.4	46.0	99.4
.....1961	34.9	29.7	64.6	9.8	10.0	19.8	44.7	39.7	84.4
Capital items charged to operating expenses.....1960	—	19.6	19.6	—	—	—	—	19.6	19.6
.....1961	—	16.8	16.8	—	—	—	—	16.8	16.8
Totals, Trade.....1960	164.9	216.1	381.0	40.0	48.4	88.4	204.9	264.5	469.4
.....1961	146.6	182.5	329.1	37.0	44.8	81.8	183.6	227.3	410.9

4.—Capital and Repair Expenditures for Certain Economic Sectors, 1960 and 1961—concluded

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
INSTITUTIONS									
Churches.....1960	59.3	2.9	62.2	9.2	0.9	10.1	68.5	3.8	72.3
.....1961	54.9	3.0	57.9	9.0	0.9	9.9	63.9	3.9	67.8
Universities.....1960	74.7	12.6	87.3	4.3	0.7	5.0	79.0	13.3	92.3
.....1961	89.4	14.2	103.6	6.0	0.7	6.7	95.4	14.9	110.3
Schools.....1960	229.6	25.9	255.5	29.4	5.4	34.8	259.0	31.3	290.3
.....1961	222.7	30.1	252.8	30.4	6.7	37.1	253.1	36.8	289.9
Hospitals.....1960	125.2	30.7	155.9	14.7	5.3	20.0	139.9	36.0	175.9
.....1961	150.9	30.2	181.1	17.3	4.8	22.1	168.2	35.0	203.2
Other institutional services...1960	11.3	0.7	12.0	1.0	0.1	1.1	12.3	0.8	13.1
.....1961	17.7	1.9	19.6	1.1	0.2	1.3	18.8	2.1	20.9
Totals, Institutions.....1960	500.1	72.8	572.9	58.6	12.4	71.0	558.7	85.2	643.9
.....1961	535.6	79.4	615.0	63.8	13.3	77.1	599.4	92.7	692.1

A summary of the capital expenditures in each province for the years 1960 and 1961 is given in Table 5. Such expenditures represent gross additions to the capital stocks of the province and are a reflection of economic activity in the area, although the actual production of these assets may generate major employment and income-giving effects in other regions. For example, the spending of millions of dollars on oil refineries and pipelines in Western Canada means activity in the steel industries of Ontario as well as construction activity in the western provinces.

5.—Capital and Repair Expenditures, by Province, 1960 and 1961

NOTE.—Actual expenditures 1960; preliminary actual 1961.

(Millions of dollars)

Province and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
Newfoundland.....1960	113	33	146	25	18	43	138	51	189
.....1961	136	43	179	27	19	46	163	62	225
Prince Edward Island.....1960	24	13	37	6	5	11	30	18	48
.....1961	25	11	36	6	5	11	31	16	47
Nova Scotia.....1960	166	68	234	53	41	94	219	109	328
.....1961	160	74	234	56	36	92	216	110	326
New Brunswick.....1960	119	61	180	37	37	74	156	98	254
.....1961	106	57	163	44	37	81	150	94	244
Quebec.....1960	1,327	680	2,007	327	389	716	1,654	1,069	2,723
.....1961	1,351	602	1,953	340	393	733	1,691	995	2,686
Ontario.....1960	1,828	1,028	2,856	505	599	1,104	2,333	1,627	3,960
.....1961	1,832	926	2,758	508	573	1,081	2,340	1,499	3,839

5.—Capital and Repair Expenditures, by Province, 1960 and 1961—concluded

Province and Year	Capital			Repair			Capital and Repair		
	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total
Manitoba.....1960	308	179	487	88	83	171	396	262	658
.....1961	294	128	422	88	79	167	382	207	589
Saskatchewan.....1960	293	181	474	86	81	167	379	262	641
.....1961	311	151	462	88	77	165	399	228	627
Alberta.....1960	666	280	946	150	125	275	816	405	1,221
.....1961	734	252	986	152	126	278	886	378	1,264
British Columbia.....1960	609	286	895	154	176	330	763	462	1,225
.....1961	625	291	916	157	175	332	782	466	1,248
Totals.....1960	5,453	2,809	8,262	1,431	1,554	2,985	6,884	4,363	11,247
.....1961	5,574	2,535	8,109	1,466	1,520	2,986	7,040	4,055	11,095

Section 2.—Construction Statistics

Subsection 1.—Value of Construction Work Performed

Statistics of the construction industry are based largely on information received at the same time and from the same sources as the data on capital expenditures which appear in Section 1.* The data represent the estimated total value of all new and repair construction performed by contractors; by labour forces of utility, manufacturing, mining and logging firms; and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

Canada's construction program for 1961 is estimated at \$7,039,000,000, slightly above the 1960 total. Repair construction is estimated to be about \$34,000,000 higher than in 1960, and the value of new construction higher by about \$119,000,000.

6.—Value of New and Repair Construction Work Performed, 1952-61

NOTE.—Actual expenditures 1952-60; preliminary actual 1961.

Year	New	Repair	Total	Total Construction as Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	p.c.
1952.....	3,434	1,010	4,444	18.5
1953.....	3,756	1,070	4,826	19.3
1954.....	3,737	1,105	4,842	19.5
1955.....	4,167	1,141	5,308	19.6
1956.....	5,272	1,182	6,454	21.1
1957.....	5,785	1,238	7,023	22.0
1958.....	5,831	1,261	7,092	21.6
1959.....	5,710	1,367	7,077	20.3
1960.....	5,454	1,432	6,886	19.2
1961.....	5,573	1,466	7,039	19.1

Table 7, which compares contract construction with other construction, shows that contractors account for from 74 p.c. to 77 p.c. of the work each year.

* An explanation of sources and methods is given in DBS annual report *Construction in Canada* (Catalogue No. 64-201).

7.—Value of Construction Work Performed, by Contractors and Others, 1958-61

NOTE.—Actual expenditures 1958-60; preliminary actual 1961.

(Millions of dollars)

Item	1958	1959	1960	1961
Contract Construction	5,441	5,269	5,183	5,286
New.....	4,844	4,685	4,506	4,571
Repair.....	597	584	677	715
Other Construction¹	1,651	1,808	1,703	1,753
New.....	987	1,025	948	1,002
Repair.....	664	783	755	751
Totals, Construction	7,092	7,077	6,886	7,039
New.....	5,831	5,710	5,454	5,573
Repair.....	1,261	1,367	1,432	1,466

¹ Work done by the labour forces of utility, manufacturing, mining and logging firms and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry.

8.—Value of Construction Work Performed, by Principal Type, 1958-61

NOTE.—Actual expenditures 1958-60; preliminary actual 1961.

(Millions of dollars)

Type of Construction	1958		1959		1960		1961	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
Building Construction	4,102	57.8	4,240	59.9	4,051	58.8	4,085	58.0
Residential.....	2,189	30.9	2,183	30.9	1,913	27.8	1,951	27.7
Industrial.....	396	5.5	416	5.9	452	6.6	402	5.7
Commercial.....	689	9.7	759	10.7	738	10.7	757	10.8
Institutional.....	550	7.8	569	8.0	615	8.9	655	9.3
Other.....	278	3.9	313	4.4	333	4.8	320	4.5
Engineering Construction	2,990	42.2	2,837	40.1	2,835	41.2	2,954	42.0
Marine.....	155	2.2	134	1.9	119	1.7	117	1.7
Road, highway and aerodrome.....	712	10.0	791	11.1	830	12.1	830	11.9
Waterworks and sewage systems.....	198	2.8	226	3.2	233	3.4	228	3.2
Dams and irrigation.....	50	0.7	60	0.8	92	1.3	107	1.5
Electric power.....	501	7.1	395	5.6	349	5.1	408	5.8
Railway, telephone and telegraph.....	401	5.7	458	6.5	452	6.6	381	5.4
Gas and oil facilities.....	650	9.2	464	6.6	454	6.6	566	8.0
Other.....	323	4.5	309	4.4	306	4.4	317	4.5
Totals, All Construction	7,092	100.0	7,077	100.0	6,886	100.0	7,039	100.0

Recent shifts within the program of construction are shown in Table 9.

9.—Dollar Change in Value of Construction Work Performed, by Type of Structure, 1959 to 1960 and 1960 to 1961

Type of Structure	Change 1959 to 1960	Change 1960 to 1961	Type of Structure	Change 1959 to 1960	Change 1960 to 1961
	\$'000,000	\$'000,000		\$'000,000	\$'000,000
Building Construction			Engineering Construction— concluded		
Residential	-270	33	Road, Highway and Aerodrome		
Dwellings—single, double, duplex and apartment.....	-270	33	—concluded		
Industrial	36	-49	Dirt, clay or other streets, roads, parking lots, etc.....	2	-9
Factories, plants, workshops, food canneries.....	21	-56	Grading, scraping, oiling, filling	-4	-4
Mine and mine mill buildings.....	16	11	Sidewalks, paths.....	5	-3
Railway stations, offices, road- way buildings.....	-3	-1	Aerodromes, landing fields, run- ways, tarmac.....	-12	2
Railway shops, engine houses, water and fuel stations.....	2	-3	Waterworks and Sewage Systems	7	-5
Commercial	-21	19	Tile drains, drainage ditches, storm sewers.....	7	—
Warehouses, storehouses, refrig- erated storage, etc.....	1	-11	Water mains, hydrants and serv- ices.....	-5	-5
Crane elevators.....	-6	4	Sewage systems and connections.	—	1
Hotels, clubs, restaurants, cafe- terias, tourist cabins.....	-13	-4	Pumping stations, water.....	3	-2
Office buildings.....	23	46	Water storage tanks.....	1	—
Stores, retail and wholesale.....	-7	-23	Dams and Irrigation	32	15
Garages and service stations.....	2	3	Dams and reservoirs.....	30	14
Theatres, arenas, amusement and recreational buildings.....	-20	8	Irrigation and land reclamation projects.....	1	1
Laundries and dry-cleaning es- tablishments.....	—	1	Electric Power	-46	59
Institutional	46	40	Electric power generating plants, including water conveying and controlling structures.....	-33	38
Schools and other educational buildings.....	39	13	Electric transformer stations.....	-2	6
Churches and other religious buildings.....	6	-4	Power transmission and distribu- tion lines, trolley wires.....	-12	14
Hospitals, sanatoria, clinics, first-aid stations, etc.....	1	29	Street lighting.....	1	2
Other institutional buildings.....	1	3	Railway, Telephone and Tele- graph	-5	-71
Other Building	20	-13	Railway tracks and roadbed.....	-13	-47
Farm buildings (excluding dwell- ings).....	-4	1	Signals and interlockers.....	1	-1
Broadcasting, radio and televi- sion, relay and booster stations, telephone exchanges.....	19	-12	Telegraph and telephone lines, underground and marine cables	6	-22
Aircraft hangars.....	-9	-4	Gas and Oil Facilities	-10	112
Passenger terminals, bus, boat or air.....	15	4	Gas mains and services.....	-18	-6
Armouries, barracks, drill halls, etc.....	-1	2	Pumping stations, oil.....	1	—
Bunkhouses, dormitories, camp cookeries, bush depots and camps.....	—	-7	Pumping stations, gas.....	11	-12
Miscellaneous.....	1	3	Oil storage tanks.....	-7	2
Totals, Building Construction	-189	34	Gas storage tanks.....	-2	27
Engineering Construction			Oil pipelines.....	-2	27
Marine	-15	-2	Gas pipelines.....	15	55
Docks, wharves, piers, break- waters.....	10	9	Oil wells.....	6	-13
Retaining walls, embankments, riprapping.....	1	-1	Gas wells.....	3	14
Canals and waterways.....	3	-2	Oil refinery—processing units.....	-29	-4
Dredging and pile driving.....	-19	-8	Natural gas cleaning plants.....	-4	57
Dykes.....	-3	—	Other Engineering	-3	11
Logging booms.....	—	—	Bridges, trestles, culverts, over- passes, viaducts.....	13	4
Other.....	-6	—	Tunnels and subways.....	-5	1
Road, Highway and Aerodrome	39	—	Incinerators.....	—	-1
Hard surfaced or paved streets, highways, parking lots, etc.....	59	13	Park systems, landscaping, sod- ding, etc.....	—	1
Gravel or stone streets, high- ways, roads, parking lots, etc.....	-12	1	Swimming pools, tennis courts, outdoor recreation facilities.....	-1	3
			Mine shafts and other below- surface workings.....	-4	—
			Fences, snowsheds, signs, guard- rails.....	-1	2
			Miscellaneous engineering con- struction.....	-5	5
			Totals, Engineering Construc- tion	-2	119
			Totals, All Construction	-191	153

Table 10 gives estimates of total expenditures in Canada on each type of construction for which information is available. It contains the detailed data from which Tables 8 and 9 are derived.

10.—Value of Construction Work Performed, by Type of Structure, 1960 and 1961

NOTE.—Actual expenditures 1960; preliminary actual 1961.

Type of Structure	1960			1961		
	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Building Construction						
Residential	1,456,100	457,000	1,913,100	1,467,000	484,000	1,951,000
Industrial	331,319	120,249	451,568	290,041	112,464	402,505
Factories, plants, workshops, food canneries.....	271,727	93,880	365,607	224,643	85,451	310,094
Mine and mine mill buildings.....	37,925	7,966	45,891	48,573	8,327	56,900
Railway stations, offices, roadway buildings.....	12,112	11,002	23,114	10,488	11,485	21,973
Railway shops, engine houses, water and fuel stations.....	9,555	7,401	16,956	6,337	7,201	13,538
Commercial	620,577	117,550	738,127	645,354	111,542	756,896
Warehouses, storehouses, refrigerated storage, etc.....	68,472	13,659	82,131	57,964	12,863	70,827
Grain elevators.....	13,339	7,562	20,901	18,469	6,698	25,167
Hotels, clubs, restaurants, cafeterias, tourist cabins.....	37,735	10,714	48,449	31,650	12,326	43,976
Office buildings.....	266,793	43,149	309,942	318,897	37,323	356,220
Stores, retail and wholesale.....	160,848	27,139	187,987	137,847	22,318	160,165
Garages and service stations.....	45,039	10,184	55,223	44,665	13,926	58,491
Theatres, arenas, amusement and recreational buildings.....	27,562	4,306	31,868	34,221	5,227	39,448
Laundries and dry-cleaning establishments.....	789	837	1,626	1,741	861	2,602
Institutional	543,146	72,042	615,188	583,688	71,159	654,847
Schools and other educational buildings.....	310,831	35,768	346,599	321,345	38,061	359,406
Churches and other religious buildings.....	60,858	9,179	70,037	56,649	9,045	65,694
Hospitals, sanatoria, clinics, first-aid stations, etc.....	137,199	16,508	153,707	163,167	19,073	182,240
Other institutional buildings.....	34,258	10,587	44,845	42,527	4,980	47,507
Other Building	234,352	98,769	333,121	221,284	98,739	320,023
Farm buildings (excluding dwellings).....	98,856	69,259	168,215	98,755	70,409	169,164
Broadcasting, radio and television, relay and booster stations, telephone exchanges.....	58,376	2,373	60,749	46,144	2,455	48,599
Aeroplane hangars.....	14,710	2,726	17,436	10,800	2,876	13,676
Passenger terminals, bus, boat or air.....	25,146	1,035	26,181	29,596	325	29,921
Armouries, barracks, drill halls, etc.....	5,986	14,860	20,846	7,894	15,090	22,984
Bunkhouses, dormitories, camp cookeries, bush depots and camps.....	17,005	4,275	21,280	11,179	3,429	14,608
Miscellaneous.....	14,273	4,141	18,414	16,916	4,155	21,071
Totals, Building Construction ...	3,185,494	865,610	4,051,104	3,207,367	877,904	4,085,271
Engineering Construction						
Marine	100,503	18,529	119,032	101,058	16,183	117,241
Docks, wharves, piers, breakwaters.....	62,713	8,827	71,540	72,693	8,231	80,924
Retaining walls, embankments, riprapping.....	3,957	306	4,263	3,203	369	3,572
Canals and waterways.....	5,182	1,529	6,711	3,052	1,466	4,518
Dredging and pile driving.....	26,143	5,447	31,590	18,297	4,902	23,199
Dyke construction.....	249	45	294	261	28	289
Logging booms.....	388	858	1,246	375	713	1,088
Other.....	1,871	1,517	3,388	3,177	474	3,651
Road, Highway and Aerodrome ...	630,920	199,439	830,359	619,488	210,509	829,997
Hard surfaced or paved streets, highways, parking lots, etc.....	370,321	86,822	457,143	376,215	93,577	469,792
Gravel or stone streets, highways, roads, parking lots, etc.....	159,390	82,442	241,832	150,981	92,151	243,132

10.—Value of Construction Work Performed, by Type of Structure, 1960 and 1961
—concluded

Type of Structure	1960			1961		
	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Engineering Construction —concluded						
Road, Highway and Aerodrome —concluded						
Dirt, clay or other streets, roads, parking lots, etc.....	30,865	19,743	50,608	26,773	14,442	41,215
Grading, scraping, cilling, filling....	23,671	2,674	26,345	18,984	3,419	22,403
Sidewalks, paths.....	18,575	5,500	24,075	16,365	4,598	20,963
Aerodromes, landing fields, run- ways, tarmac.....	28,098	2,258	30,356	30,170	2,322	32,492
Waterworks and Sewage Systems	192,899	39,884	232,783	189,196	38,515	227,711
Tile drains, drainage ditches, storm sewers.....	12,132	8,990	21,122	12,054	9,265	21,319
Water mains, hydrants and serv- ices.....	61,202	17,075	78,277	57,036	16,461	73,497
Sewage systems and connections...	103,454	9,913	113,367	105,903	8,909	114,812
Pumping stations, water.....	13,595	3,659	17,254	11,900	3,373	15,273
Water storage tanks.....	2,516	247	2,763	2,303	507	2,810
Dams and Irrigation	82,434	9,309	91,743	97,563	9,224	106,787
Dams and reservoirs.....	72,729	3,566	76,295	86,465	3,583	90,048
Irrigation and land reclamation projects.....	9,705	5,743	15,448	11,098	5,641	16,739
Electric Power	298,618	50,259	348,877	349,117	59,005	408,122
Electric power generating plants, including water conveying and controlling structures.....	116,971	12,006	128,977	153,733	13,011	166,744
Electric transformer stations.....	36,109	7,447	43,556	40,783	8,364	49,147
Power transmission and distribu- tion lines, trolley wires.....	133,415	26,263	159,678	141,669	31,631	173,300
Street lighting.....	12,123	4,543	16,666	12,932	5,999	18,931
Railway, Telephone and Tele- graph	299,146	152,415	451,561	224,930	156,035	380,965
Railway tracks and roadbed.....	163,198	105,872	269,070	110,137	111,619	221,756
Signals and interlockers.....	7,080	6,616	13,696	4,855	7,426	12,281
Telegraph and telephone lines, underground and marine cables.....	128,868	39,927	168,795	109,938	36,990	146,928
Gas and Oil Facilities	409,302	15,070	424,372	518,821	47,072	565,893
Gas mains and services.....	54,794	5,970	60,764	49,317	5,463	54,780
Pumping stations, oil.....	3,075	917	3,992	3,390	998	4,388
Pumping stations, gas.....	27,316	54	27,370	15,742	91	15,833
Oil storage tanks.....	20,045	2,641	22,686	11,440	1,909	13,349
Gas storage tanks.....	8,752	117	8,869	11,092	153	11,245
Oil pipelines.....	15,010	1,507	16,517	41,982	1,691	43,673
Gas pipelines.....	51,728	1,079	52,807	106,903	814	107,717
Oil wells.....	135,426	5,737	141,163	122,798	5,640	128,438
Gas wells.....	33,919	768	34,687	47,095	1,531	48,626
Oil refinery—processing units.....	39,416	24,967	64,383	33,418	26,535	59,953
Natural gas cleaning plants.....	19,821	1,313	21,134	75,644	2,247	77,891
Other Engineering	254,416	52,008	306,424	265,451	51,856	317,307
Bridges, trestles, culverts, over- passes, viaducts.....	170,738	25,658	196,396	175,237	25,616	200,853
Tunnels and subways.....	21,591	149	21,740	22,608	559	23,167
Incinerators.....	1,981	1,510	3,491	1,552	446	1,998
Park systems, landscaping, sod- ding, etc.....	5,068	3,718	8,786	5,912	3,405	9,317
Swimming pools, tennis courts, outdoor recreation facilities.....	2,587	1,045	3,632	5,352	1,660	7,012
Mine shafts and other below surface workings.....	26,242	3,155	29,397	24,916	4,224	29,140
Fences, snowsheds, signs, guard rails.....	10,743	8,429	19,172	9,494	7,671	17,165
Miscellaneous.....	15,466	8,344	23,810	20,380	8,275	28,655
Totals, Engineering Construc- tion	2,268,238	566,913	2,835,151	2,365,624	588,399	2,954,023
Totals, All Construction	5,453,732	1,432,523	6,886,255	5,572,991	1,466,303	7,039,294

Principal statistics of the construction industry are shown by province and for contractors, utilities, governments and others in Table 11. The statistics given for Canada as a whole may be considered as relatively accurate but those for individual provinces and by class of builder are approximations only. All estimates given for cost of materials used are based on ratios of this item to total value of work performed, derived from annual surveys of construction work and applied to the total value-of-work figures. Estimates of labour content are similarly based but, in addition, are adjusted to include working owners and partners and their withdrawals. Although the ratios were calculated in some detail by type of industry, still further refinements are required. There are also some difficulties in obtaining the precise location of projects undertaken or to be undertaken by large companies operating in a number of provinces. However, if used with these qualifications in mind, the table provides useful estimates.

11.—Labour Content, Cost of Materials and Value of Work Performed in Construction, by Province and by Employer, 1958-61

NOTE.—Actual expenditures 1958-60; preliminary actual 1961.

Province and Year	Labour Content		Cost of Materials Used	Value of Work Performed
	Number	Value		
		\$'000	\$'000	\$'000
Province				
Newfoundland.....	1958	9,226	30,999	41,504
	1959	11,382	38,881	43,363
	1960	11,817	47,882	64,053
	1961	13,845	56,234	75,685
Prince Edward Island.....	1958	2,070	5,842	9,664
	1959	2,845	7,715	15,647
	1960	2,734	7,930	15,459
	1961	2,796	8,268	16,163
Nova Scotia.....	1958	19,446	57,766	72,854
	1959	22,994	73,232	96,223
	1960	22,937	75,163	102,521
	1961	22,157	73,566	100,502
New Brunswick.....	1958	16,644	53,135	87,468
	1959	16,421	57,030	86,020
	1960	16,660	54,925	72,880
	1961	15,834	52,636	70,767
Quebec.....	1958	144,405	537,707	890,149
	1959	142,154	567,179	894,940
	1960	129,350	543,343	804,971
	1961	131,381	557,136	830,917
Ontario.....	1958	214,006	896,629	1,203,999
	1959	195,433	844,800	1,130,533
	1960	185,694	840,649	1,103,616
	1961	183,255	846,519	1,104,688
Manitoba.....	1958	29,495	112,424	163,746
	1959	32,211	127,322	201,946
	1960	31,101	131,066	196,577
	1961	29,795	128,467	188,399
Saskatchewan.....	1958	28,959	114,656	192,193
	1959	29,186	116,681	171,020
	1960	29,235	116,442	187,463
	1961	29,783	121,950	196,831
Alberta.....	1958	57,141	229,400	355,157
	1959	58,931	248,251	367,511
	1960	57,070	244,218	370,242
	1961	59,086	259,242	391,956
British Columbia.....	1958	60,600	276,877	356,093
	1959	60,355	297,123	360,051
	1960	54,593	275,273	333,840
	1961	54,793	283,515	339,942
Totals.....	1958	581,992	2,315,435	3,372,827
	1959	571,912	2,378,214	3,367,254
	1960	541,191	2,336,891	3,251,622
	1961	542,725	2,387,533	3,315,850
				7,092,481
				7,077,383
				6,886,255
				7,039,294

11.—Labour Content, Cost of Materials and Value of Work Performed in Construction, by Province and by Employer, 1958-61—concluded

Employer and Year	Labour Content		Cost of Materials Used	Value of Work Performed
	Number	Value		
		\$'000	\$'000	\$'000
Employer				
Contractors.....	1958 393,854	1,655,812	2,606,012	5,441,352
	1959 383,825	1,650,000	2,531,105	5,269,521
	1960 359,711	1,611,273	2,503,376	5,182,772
	1961 360,904	1,642,104	2,544,100	5,285,684
Utilities.....	1958 72,694	284,921	411,438	774,336
	1959 66,564	303,082	395,103	779,355
	1960 66,235	311,988	379,532	749,932
	1961 67,954	328,684	397,434	786,993
Governments.....	1958 65,806	200,102	113,079	398,070
	1959 63,339	203,585	140,417	432,682
	1960 74,509	244,938	171,041	528,031
	1961 73,655	246,276	170,968	529,399
Others.....	1958 49,638	174,600	242,298	478,723
	1959 58,184	221,547	300,629	595,925
	1960 40,736	168,692	197,673	425,520
	1961 40,212	170,469	203,348	437,218

Subsection 2.—Contracts Awarded and Building Permits Issued

In this Subsection statistics are given of work actually in sight either as contracts awarded or as building permits. These figures are related to those of work performed during the year only so far as the work thus provided for is completed and duly reported in the capital expenditure surveys. Further, values of contracts awarded, and especially of building permits, are estimates (more often under-estimates) of work to be done.

12.—Value of Construction Contracts Awarded, 1926-61

(Source: *Hugh C. MacLean Building Reports*)

Year	Value of Construction Contracts	Year	Value of Construction Contracts	Year	Value of Construction Contracts
	£		£		\$
1926.....	372,947,900	1938.....	187,277,900	1950.....	1,525,764,700
1927.....	418,951,600	1939.....	187,178,500	1951.....	2,295,499,200
1928.....	472,032,600	1940.....	346,009,800	1952.....	1,812,177,600
1929.....	576,651,800	1941.....	393,991,300	1953.....	2,017,060,700
1930.....	456,999,600	1942.....	281,594,100	1954.....	2,154,959,200
1931.....	315,482,000	1943.....	206,103,900	1955.....	3,183,592,000
1932.....	132,872,400	1944.....	291,961,800	1956.....	3,426,905,500
1933.....	97,289,800	1945.....	409,032,700	1957.....	2,894,168,100
1934.....	125,811,500	1946.....	663,355,100	1958.....	3,593,709,200
1935.....	160,305,000	1947.....	718,137,100	1959.....	3,219,073,300
1936.....	162,588,000	1948.....	954,082,400	1960.....	3,053,749,500
1937.....	224,056,700	1949 ¹	1,143,547,300	1961.....	3,220,937,300

¹ Newfoundland included from Apr. 1, 1949.

13.—Value of Construction Contracts Awarded, by Province and Type of Construction, 1958-61

(SOURCE: *Hugh C. MacLean Building Reports*)

Province and Type of Construction	1958	1959	1960	1961
	\$	\$	\$	\$
Newfoundland.....	35,448,500	62,317,600	70,055,900	147,688,300
Prince Edward Island.....	10,156,200	9,999,600	12,217,100	12,479,600
Nova Scotia.....	105,047,700	109,519,000	132,899,300	83,011,900
New Brunswick.....	141,119,900	70,195,000	52,466,300	63,140,200
Quebec.....	1,042,854,900	913,558,400	722,926,800	888,672,500
Ontario.....	1,489,593,500	1,262,306,000	1,325,881,400	1,229,002,600
Manitoba.....	124,936,300	117,779,600	142,199,900	164,340,100
Saskatchewan.....	117,024,800	116,656,500	116,067,400	134,809,100
Alberta.....	257,745,400	274,654,400	222,018,600	287,018,900
British Columbia.....	269,782,000	282,087,200	257,016,800	210,774,100
Totals.....	3,593,709,200	3,219,073,300	3,053,749,500	3,220,937,300
Residential.....	1,413,219,900	1,112,670,700	769,771,600	1,003,958,600
Apartments.....	344,517,800	274,302,800	214,955,100	269,609,500
Residences.....	1,068,702,100	838,367,900	554,816,500	734,349,100
Business.....	1,125,394,400	1,068,818,100	1,118,646,500	1,090,518,200
Churches.....	48,624,100	43,713,700	49,504,100	46,586,800
Public garages.....	22,011,700	24,296,100	15,559,700	12,365,900
Hospitals.....	107,918,500	102,286,100	181,423,300	93,727,100
Hotels and clubs.....	72,590,700	83,154,600	51,209,100	116,937,900
Office buildings.....	230,816,500	161,494,800	128,891,600	127,335,500
Public buildings.....	139,151,400	98,373,800	140,901,800	143,048,300
Schools.....	252,131,000	303,325,500	316,932,600	336,135,500
Stores.....	160,094,100	130,686,100	136,356,200	118,750,600
Theatres.....	10,406,400	439,000	1,894,100	13,739,600
Warehouses.....	81,650,000	121,048,400	95,974,000	81,891,000
Industrial.....	248,764,000	261,023,100	286,326,000	361,239,000
Engineering.....	806,330,900	776,561,400	879,005,400	765,221,500
Bridges.....	69,360,100	101,381,400	119,669,400	84,205,300
Marine.....	61,649,200	50,042,600	48,513,200	65,465,200
Sewerage and waterworks.....	121,365,000	129,246,200	137,599,100	127,443,800
Roads and streets.....	261,771,600	266,932,300	215,838,600	193,678,500
Power and communications.....	82,664,700	127,363,100	296,970,400	205,581,700
Miscellaneous.....	199,520,300	101,595,800	60,414,700	88,847,000

Building Permits.—The estimated value of proposed construction is indicated by the value of building permits issued. Figures of building permits issued are collected for more than 1,000 municipalities across the country and are available for the individual municipalities, for metropolitan areas, for provinces and for economic areas in Quebec, Ontario and Manitoba.

During 1961, building permits were issued for over \$2,244,000,000 worth of construction work, 10.8 p.c. more than in the previous year. The value of new residential construction increased by 25.3 p.c., although it was still somewhat below the 1959 and 1958 totals, and industrial and commercial construction increased 7.5 p.c. and 1.2 p.c., respectively, as compared with 1960. On the other hand, institutional and government construction decreased by 6.3 p.c. Building permits issued were higher in all provinces in 1961 than in 1960 except for Manitoba where the decrease was 8.5 p.c.

Table 14 shows the value of building permits issued in each of 50 municipalities for the years 1956-61.

**11.—Estimated Value of Proposed Construction as Indicated by Building Permits
Issued in 50 Municipalities, 1956-61**

Province and Municipality	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland—						
St. John's.....	6,294	6,779	15,709	10,387	6,705	15,732
Prince Edward Island—						
Charlottetown.....	1,157	569	3,494	1,083	1,731	5,083
Nova Scotia—						
Halifax.....	11,694	7,478	12,849	18,770	14,229	20,710
New Brunswick—						
Fredericton.....	4,230	3,868	2,903	6,108	3,113	840
Moncton.....	6,871	5,515	7,713	7,959	10,609	14,002
Saint John.....	4,018	7,515	2,098	5,279	3,242	4,733
Quebec—						
LaSalle.....	10,875	7,377	11,233	9,417	13,120	10,948
Montreal.....	161,218	129,922	164,608	209,190	154,261	117,770
Quebec.....	8,656	15,910	15,267	11,055	17,012	16,173
St. Laurent.....	15,709	16,721	15,149	13,302	15,420	9,111
Ste. Foy.....	11,207	6,934	9,351	11,865	14,426	16,613
Sept. Îles.....			6,016	9,827	9,767	9,261
Sherbrooke.....	5,803	3,850	5,561	8,717	10,051	8,210
Trois Rivières.....	6,163	4,751	6,014	9,157	9,408	6,340
Ontario—						
Brampton.....	3,008	4,874	4,557	9,063	10,628	12,196
Burlington.....	2,186	2,020	19,857	13,521	10,780	10,821
Etobicoke Township.....	68,621	56,729	70,092	68,979	53,088	64,838
Hamilton.....	35,675	39,385	43,444	46,682	53,335	34,500
Kitchener.....	14,639	9,229	14,579	16,978	22,861	15,558
London.....	8,487	7,345	14,893	14,385	12,254	34,813
London Township.....	13,277	14,275	19,325	18,082	13,805	532
Nepean Township.....	4,814	4,886	6,262	8,954	16,709	18,563
Oshawa.....	10,192	12,941	15,589	13,553	12,262	10,973
Ottawa.....	57,514	74,356	88,747	74,487	55,647	78,524
Port Arthur.....	5,090	7,104	10,209	8,946	14,063	13,905
Scarborough Township.....	60,234	57,586	72,369	74,988	53,177	58,687
Toronto.....	87,473	120,722	107,910	106,579	107,472	108,062
Toronto Township.....	16,553	18,844	33,274	22,975	24,860	25,957
Windsor.....	11,862	9,525	12,309	5,393	11,486	10,959
York North Township.....	78,276	76,645	128,892	96,681	82,348	100,826
York Township.....	15,040	12,346	18,604	5,861	12,443	9,226
Manitoba—						
Fort Garry.....	4,073	3,429	3,814	9,078	7,226	
St. Boniface.....	9,914	3,134	6,709	7,725	7,429	
St. James.....	5,893	6,500	13,252	13,675	11,165	83,543 ¹
Winnipeg.....	29,499	34,005	28,538	30,485	36,379	
Saskatchewan—						
Moose Jaw.....	3,247	2,698	5,832	6,635	3,779	2,185
Prince Albert.....	3,061	2,954	4,387	4,220	4,896	5,579
Regina.....	18,368	20,650	29,227	35,055	24,436	32,582
Saskatoon.....	16,605	21,753	29,420	34,205	26,374	26,624
Alberta—						
Calgary.....	58,960	56,014	101,551	98,398	68,924	70,376
Edmonton.....	69,404	64,379	72,445	70,842	56,100	68,589
Jasper Place.....	2,744	4,318	10,855	13,000	9,656	8,863
Lethbridge.....	7,001	4,655	7,780	9,082	5,084	6,634
Medicine Hat.....	4,473	3,188	5,604	7,557	4,960	6,739
Red Deer.....	3,525	3,246	4,729	8,309	5,970	6,920
British Columbia—						
Burnaby District.....	14,405	23,230	19,739	20,191	21,981	13,080
Richmond District.....	10,867	14,547	18,477	16,143	9,898	11,785
Surrey District.....	13,016	19,260	26,409	17,326	9,483	9,082
Vancouver.....	64,685	56,255	55,897	56,381	36,520	38,699
Victoria.....	6,672	5,414	6,825	7,051	7,856	9,129

¹ Metropolitan Corporation of Greater Winnipeg.

Table 15 shows the value of building permits issued in 17 metropolitan areas across Canada. In 1961 the permits issued in these areas made up over 65 p.c. of the total for Canada.

15.—Estimated Value of Building Permits Issued in Metropolitan Areas, 1960 and 1961

Metropolitan Area	1960	1961	Metropolitan Area	1960	1961
	\$'000	\$'000		\$'000	\$'000
St. John's ¹	6,705	15,732	Sudbury.....	6,097 ²	15,082
Halifax.....	17,359	31,748	London.....	30,834	38,200
Saint John.....	3,269	4,881	Windsor.....	21,538	21,825
Quebec.....	49,700	59,006	Winnipeg.....	93,363	83,543
Montreal.....	290,265	318,917	Calgary.....	73,714	74,947
Ottawa-Hull.....	90,187	128,012	Edmonton.....	70,096	90,220
Toronto.....	332,575	358,151	Vancouver.....	109,827	108,482
Hamilton.....	74,679	53,685	Victoria.....	17,437	23,726
Kitchener.....	22,861 ²	36,562			

¹ Although this is a metropolitan area, only St. John's proper is included in the building permits survey.
² Kitchener proper. ² Sudbury proper.

Table 16 shows the value of building permits, by province, for the years 1958-61 and Table 17 the number of dwelling units covered by building permits in each province for the same years. The relative material was compiled from municipal figures and therefore varies with the terms of individual by-laws, with the methods of estimating the value of local construction and with other factors that may differ from area to area. Information is not available on the permits allowed to lapse without the relative construction being undertaken.

16.—Value of Building Permits Issued, by Province, 1958-61

Province and Year	Residential Construction			Non-residential Construction				Total
	New	Repair	Total	Industrial	Com- mercial	Institu- tional and Govern- ment	Other	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....1958	6,742	566	7,308	1,006	1,262	8,986	3	18,565
1959	4,058	592	4,650	894	1,671	5,405	—	12,620
1960	2,916	493	3,409	78	2,280	4,005	9	9,781
1961	5,129	539	5,668	978	2,866	10,269	9	19,790
Prince Edward Is....1958	624	24	648	24	941	2,301	—	3,914
1959	1,654	31	1,685	7	838	357	—	2,887
1960	851	71	922	134	509	792	1	2,358
1961	3,915	128	4,043	1,580	539	1,541	—	7,703
Nova Scotia.....1958	8,935	1,275	10,210	742	7,221	7,531	17	25,721
1959	13,440	1,095	14,535	2,043	8,472	7,109	15	32,174
1960	8,853	1,090	9,943	1,674	6,433	18,008	10	36,068
1961	14,955	1,828	16,783	2,704	14,834	10,233	20	44,574
New Brunswick.....1958	7,244	1,098	8,342	1,269	3,681	5,399	34	18,725
1959	9,443	1,476	10,919	1,509	6,543	7,901	17	26,889
1960	5,552	1,451	7,003	835	6,031	8,675	19	22,563
1961	9,202	1,602	10,804	1,325	9,003	9,085	6	30,223
Quebec.....1958	268,535	12,315	280,850	32,237	86,483	91,131	479	491,180
1959	237,967	13,368	251,335	47,666	163,631	83,820	362	546,814
1960	192,556	12,720	205,276	34,957	115,393	108,645	405	464,676
1961	276,093	16,928	293,021	34,314	104,011	89,163	220	520,729
Ontario.....1958	626,636	22,399	649,035	90,143	153,216	203,332	1,990	1,097,716
1959	525,170	26,926	552,096	93,926	186,918	185,639	2,192	1,020,771
1960	414,536	23,995	438,531	107,442	170,545	186,859	2,442	905,819
1961	469,449	25,464	494,913	95,559	196,891	200,356	481	988,200

16.—Value of Building Permits Issued, by Province, 1958-61—concluded

Province and Year	Residential Construction			Non-residential Construction				Total	
	New	Repair	Total	Industrial	Com- mercial	Institu- tional and Govern- ment	Other		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000		
Manitoba	1958	52,271	2,349	54,620	9,111	19,054	11,748	20	94,553
	1959	60,099	2,534	62,633	6,209	20,764	20,972	15	110,593
	1960	49,692	2,960	52,652	7,898	24,224	30,212	64	115,050
	1961	47,685	3,163	50,848	16,940	17,561	19,885	25	105,259
Saskatchewan	1958	45,451	2,713	48,164	4,216	15,154	16,124	104	83,762
	1959	53,232	3,102	56,334	5,045	15,455	23,857	79	100,770
	1960	33,609	2,989	36,598	4,635	16,848	17,064	90	75,235
	1961	43,306	2,927	46,233	3,520	18,304	20,210	132	88,399
Alberta	1958	140,199	3,992	144,191	30,516	46,968	36,301	433	258,409
	1959	138,861	4,557	143,418	20,777	48,122	57,580	355	270,252
	1960	86,794	4,783	91,577	12,632	42,819	51,846	247	199,121
	1961	133,212	5,248	138,460	21,697	35,778	36,231	212	232,378
British Columbia	1958	167,155	10,347	177,502	10,826	32,761	42,773	352	264,214
	1959	146,656	11,000	157,656	14,637	56,431	26,318	264	255,306
	1960	88,464	10,124	98,588	13,936	47,667	33,730	235	194,156
	1961	104,572	10,645	115,217	19,493	38,065	34,021	202	206,998
Totals	1958	1,323,792	57,078	1,380,870	180,090	366,741	425,626	3,432	2,356,759
	1959	1,190,580	64,681	1,255,261	192,713	508,845	418,958	3,299	2,379,076
	1960	883,823	60,676	944,499	184,221	432,749	459,836	3,522	2,024,827
	1961	1,107,518	68,472	1,175,990	198,110	437,852	430,994	1,307	2,244,253

17.—Number of Dwelling Units Covered by Building Permits, by Province, 1958-61

Province and Year	Apart- ments	Other	Total	Province and Year	Apart- ments	Other	Total
	No.	No.	No.		No.	No.	No.
Newfoundland.....1958	55	568	623	Manitoba.....1958	1,578	4,234	5,812
1959	10	402	412	1959	2,117	4,246	6,363
1960	29	290	319	1960	1,347	3,555	4,902
1961	32	441	473	1961	1,368	3,440	4,808
Prince Edward Island...1958	29	45	74	Saskatchewan.....1958	565	3,997	4,562
1959	34	157	191	1959	772	4,375	5,147
1960	36	57	93	1960	571	2,796	3,367
1961	37	359	396	1961	499	3,597	4,096
Nova Scotia.....1958	484	662	1,146	Alberta.....1958	1,912	13,159	15,071
1959	303	1,070	1,373	1959	1,797	11,739	13,536
1960	422	584	1,006	1960	1,101	6,941	8,042
1961	439	1,013	1,452	1961	2,921	9,809	12,730
New Brunswick.....1958	103	690	793	British Columbia.....1958	4,021	14,324	18,345
1959	94	822	916	1959	3,162	11,828	14,990
1960	58	477	535	1960	2,240	6,631	8,871
1961	208	700	908	1961	2,865	7,424	10,289
Quebec.....1958	19,516	18,197	37,713	Totals.....1958	46,847	102,297	149,144
1959	16,132	16,122	32,254	1959	41,745	87,000	128,745
1960	10,053	14,112	24,165	1960	33,711	60,299	94,010
1961	10,507	21,966	32,473	1961	36,712	76,894	113,606
Ontario.....1958	18,584	46,421	65,005				
1959	17,324	36,239	53,563				
1960	17,854	24,856	42,710				
1961	17,836	28,145	45,981				

The indexes given in Table 18 show as far as possible the fluctuations in building costs and their effect upon construction work and employment. The relative proportions of material and wage costs in general building are difficult to determine since such proportions vary with the type of building and the centres studied.

18.—Index Numbers of Prices of Building Materials, and Wage Rates and Employment in Construction Industries, 1952-61

(Av. 1949=100)

Year	Prices of Building Materials		Wage Rates in Construction Industries ¹	Employment in Building Construction ²
	Residential	Non-residential		
1952.....	124.9	123.2	129.5	127.9
1953.....	123.9	124.4	137.2	127.8
1954.....	121.7	121.8	141.1	111.1
1955.....	124.3	123.4	146.6	120.2
1956.....	128.5	128.0	152.4	145.5
1957.....	128.4	130.0	162.9	147.7
1958.....	127.3	129.8	173.6	130.1
1959.....	130.0	131.7	183.4	136.5
1960.....	129.2	132.3 ^a	195.5	128.6
1961.....	128.4	131.1	199.7	122.5

¹ Compiled by the Department of Labour.

² As reported by employers with 15 or more employees.

Section 3.—Housing*

Subsection 1.—Government Aid to House-Building

Federal Assistance.—The role of the Federal Government in housing has expanded progressively since the introduction of the first continuing statute in 1935. Although the Government originally entered the housing field in 1918, when it made money available to the provinces for re-lending to municipalities for housing purposes, the first general piece of federal housing legislation was the Dominion Housing Act passed in 1935. This was followed by the National Housing Acts of 1938 and 1944, culminating in 1954 with the present National Housing Act, defined as "an Act to promote the construction of new houses, the repair and modernization of existing houses and the improvement of housing and living conditions". Central Mortgage and Housing Corporation, a Crown agency incorporated by Act of Parliament in 1945, administers the National Housing Act and coordinates the activities of the Federal Government in housing. The Corporation has the authority and responsibility for a variety of functions affecting housing in its long-term outlook as well as in its immediate requirements. It is empowered to act as an insurer of mortgage loans, as a lender or investor of public funds, as a guarantor and as an owner of property and other assets. It also acts as a research agency in fields associated with housing and enters into partnership with both provincial and municipal governments to assist in housing.

In general, the Government, through the successive Housing Acts, has attempted to stimulate and supplement the market for housing rather than assume direct responsibilities that rightfully belong to other levels of government or that could be borne more effectively by private enterprise. In each case the aim has been to increase the flow of mortgage money and to encourage lenders to make loans on more favourable terms to prospective owners.

The volume of house-building in Canada since 1935 has been spectacular. Close to half of the country's present stock of more than 4,730,000 houses have been built since the first covering legislation was enacted; about one-third of these were financed in one way or another under the Housing Acts.

* Prepared in the Information Division, Central Mortgage and Housing Corporation, Ottawa.

Under the terms of the National Housing Act, 1954 and its subsequent amendments, the Federal Government is active in many ways.

Loan Insurance.—Mortgage loans made by approved lenders may be insured for home ownership and for rental housing. They are normally available from approved lenders (chartered banks, life insurance, trust and loan companies) to individual home-owner applicants, to builders constructing houses for sale or for rent, to rental investors or to some special groups such as co-operative housing associations and farmers. Upon application, the borrower pays the Corporation a fee of \$35 per unit to help defray expenses incurred in the examination of plans and specifications, in the determination of lending values and in compliance inspections during construction. An approved lender requires evidence that a home owner or home purchaser is providing 5 p.c. of the value of the house from his own resources. For the home owner this equity may be in the form of cash or a combination of cash, land and labour; for the home purchaser it is in cash or labour. The regulations require that gross debt service—the ratio of repayments of principal, interest and taxes to the income of the borrower—should not exceed 27 p.c. Instances involving higher ratios may be considered on their merits by the approved lender and the Corporation.

The borrower pays an insurance fee which is added to the amount of the loan and is repaid over the term of the mortgage. In the case of a loan for a home-owner unit, the borrower pays a fee of 2 p.c. of the loan if mortgage advances are required during construction and 1½ p.c. if the total loan is advanced when construction is complete. On a rental loan the borrower pays 2½ p.c. of the loan if advances are required during construction and 2¼ p.c. if the loan is not required until construction is complete. In some areas, lenders have arranged to make the inspections for progress advances.

For single-family home ownership, loans may be up to 95 p.c. of the first \$12,000 of lending value and 70 p.c. of the balance but may not exceed a total of \$14,200 for a house with three or fewer bedrooms. Maximum loan for a house with more than three bedrooms is \$14,900; for types other than single home-owner units, the maximum loan varies with the type of unit. Loans for rental housing may be up to 85 p.c. of the lending value of the project and are subject to maximum loan amounts on dwelling types. The maximum loan available for multiple-family dwellings is \$8,750 per family unit. The period for repayment of home-owner loans must be at least 25 years (unless a lesser period is requested in writing by the borrower) and may be up to 35 years if the lender agrees. The term of rental loans may not exceed 35 years and home conversion loans 15 years, unless shorter periods are requested by the borrowers. Repayments are made in equal monthly instalments, including interest and municipal taxes. The maximum interest rate is prescribed by the Governor in Council; on Oct. 30, 1961, it was reduced to 6½ p.c. per annum from 6¾ p.c.

Loans.—Sect. 40 of the National Housing Act authorizes the Corporation to make any type of loan that may be made by an approved lender under Part I of the Act (home-owner, defence worker, co-operative, builder or rental) or under Sect. 15 (rental guarantee projects) where in the opinion of the Corporation a loan is not available to a satisfactory applicant through an approved lender. By Government policy, direct loans for rental and rental guarantee projects have not been made in recent years. Loans corresponding to Part I loans have in the past been restricted in general to home ownership in the smaller urban centres. On May 22, 1958, however, direct lending was extended to include builders in any area and home owners in the larger centres, with the loans subject to size limitations which placed the houses in the small home category. Loans were made through agents of the Corporation between Sept. 3, 1957 and the suspension of the arrangements—Feb. 8, 1959 for rental loans and Apr. 10, 1959 for home-owner and builder loans. Funds that were available to CMHC under the statutory vote for direct lending purposes were fully committed in the first ten months of 1959 and it was necessary to stop accepting new applications on Oct. 30.

In January 1960, Parliament voted an additional \$500,000,000 for direct lending by CMHC; lending to prospective home owners was resumed in April and to merchant builders with commitments from *bona fide* purchasers in September. In September 1961, the amount that may be advanced to the Corporation out of the Consolidated Revenue Fund for direct lending was increased to \$2,000,000,000 from \$1,500,000,000.

Under the National Housing Act, the Corporation, with Government approval by Order in Council, may make a loan to a limited-dividend housing company to assist in financing the construction of a low-rental housing project or in the purchase of existing buildings and their conversion into a low-rental housing project. The dividends of the company are limited by the terms of its charter to 5 p.c. or less of paid-up share capital. A loan under Sect. 16 may be up to a maximum of either 85 p.c. or 90 p.c. of the lending value established by CMHC, the larger amount applying only to non-profit companies. The period for repayment may not exceed the useful life of the project and in any case may not be for more than 50 years. The interest rate is established by Order in Council. The equity must be provided by the borrowers before NHA advances can be made. The company must present evidence that conditions of shortage, over-crowding or substandard housing exist in the district. Plans and specifications must be approved by the Corporation. The borrower pays to the Corporation an application fee of \$35 for each housing unit in the project. This may be reduced to \$17.50 a unit if evidence is submitted that dividends payable will not be taxable under the Income Tax Act when received by the shareholders.

Limited-dividend projects are subject to proven end costs. If final costs are less than originally established, the loan is reduced proportionately. The loan is also reduced by the net revenue earned prior to the completion of construction. The borrower enters into an operating agreement with the Corporation fixing the rentals, income ranges of eligible tenants, the establishment and use of reserves and the submission of annual financial statements. Those considered eligible for accommodation are persons with incomes in the lower third of the income level of the municipality. The gross family income of incoming tenants must not exceed the level established by the Corporation. Leases terminate automatically when income exceeds the continued occupancy limit set by the Corporation.

Projects may be designed especially for the elderly. These projects have been sponsored usually by non-profit organizations requiring no return on equity. The Corporation requires that the limited-dividend company contribute at least half of the required 10-p.c. equity. The remainder may be provided by provincial or other grants; in some provinces, provincial grants are available to non-profit organizations. The income for entry must be at least twice the shelter rent and leases terminate automatically when income exceeds five times the shelter rent that would apply with a 90-p.c. loan.

New legislation enacted in 1960 broadened the facilities of the National Housing Act to include financial assistance to municipalities for the elimination or prevention of water and soil pollution. CMHC is authorized to make a loan to a municipality or a municipal sewerage corporation for the construction or expansion of a sewage treatment project; under the Act, a sewage treatment project consists of a trunk sewage collector system, a central treatment plant, or both, for the collection and treatment of sewage from one or more municipalities. Also included is the expansion of an existing plant or existing trunk collector sewer. The loan may not exceed two-thirds of the cost of the project and the maximum repayment term is 50 years from date of completion. The interest rate is prescribed by the Governor in Council. The agreement also contains a condition whereby 25 p.c. of the loan principal and 25 p.c. of the accrued or paid interest will be forgiven, provided the project is completed to the satisfaction of the Corporation on or before Mar. 31, 1963.

Other 1960 legislation authorizes long-term loans to universities for the construction of student residences or the acquisition of existing buildings and their conversion into a university housing project. CMHC may lend up to 90 p.c. of the project cost as agreed between the university and the Corporation, with the maximum amount limited by regu-

lation to \$7,000 per student accommodated. Term of the loan may not exceed 50 years from date of the project's completion. The interest rate, prescribed by the Governor in Council, depends on the Government's borrowing rate which changes from time to time.

Guarantees.—Since 1955, loans to assist in financing the improvement of existing houses have been available under Sect. 24 of the National Housing Act. This Section authorizes CMHC to give a limited guarantee to banks or approved instalment credit agencies in return for an insurance fee paid by the borrower on loans made for additions, repairs and alterations to existing houses and apartments. A home improvement loan and the balance owing on any existing NHIA home improvement loan on the property may not exceed \$4,000 for a one-family dwelling or \$4,000 for the first unit of a duplex, semi-detached, or multiple-family dwelling, plus \$1,500 for each additional unit. Loans are repayable in monthly instalments, together with interest, in not more than 10 years.

Investments.—Under Sect. 36 of the National Housing Act and complementary provincial legislation, the Federal Government and the government of a province may enter into a partnership agreement to build rental housing for families of low income. The Federal Government bears 75 p.c. of the capital costs and the provincial government the remainder, although the latter may call upon the municipality concerned to bear a portion of the provincial share. Federal-provincial rental housing projects are of two types—subsidized and full-recovery. In subsidized projects, rents are related to the tenant's family income and size of family; in full-recovery projects, rents are set at a level sufficient to amortize capital costs and to recover operating expenses.

A 1960 amendment to Sect. 36 permits the Government to supplement its federal-provincial low-rental housing program by making provision for the acquisition of existing housing stock. The amendment authorizes the Government to pay 75 p.c. of the cost of acquisition, improvement and conversion of these buildings for housing purposes. This financial assistance is available on condition that the existing accommodation is located in a section designated as an urban renewal area in an agreement between a province, a municipality in the province, and the Corporation. Remainder of the cost will be shared by the participating governments in the same manner as for new housing under this Section.

Under the same Section of the National Housing Act, the Federal Government and the government of a province may also enter into an agreement to provide for a land assembly project, which involves the development of raw land for housing purposes. After subdivision planning, installation of sewer and water lines and the construction of roads and sidewalks, serviced lots are made available for sale to prospective home owners or to builders for residential construction. The Federal Government pays 75 p.c. of the cost of such projects and the province concerned pays the remainder.

Corporation Building.—The Corporation may construct and administer housing and certain other buildings on its own account and for other government departments and agencies. Its responsibilities include the provision of architectural and engineering designs, the calling of public tenders and the administration of the construction contracts—including any necessary on-site surveys and engineering. On such contracts the Corporation carries out full architectural and engineering inspections.

Grants.—The Federal Government makes financial assistance available to municipalities for the study of existing conditions and the establishment of their needs for redevelopment and housing. Under Part V of the Act, the Corporation may arrange with a municipality to undertake either a city-wide study or a study in a specific area. In the case of city-wide investigation, the Government may provide as much as 75 p.c. of the cost and up to 50 p.c. for study of a limited area. Under Sect. 23, the Government may pay up to 50 p.c. of the cost of acquisition and clearance of an area marked for renewal.

Research.—The Government's housing agency is concerned also with building technology in the formulation of standards for house construction, in the use of suitable materials and in the development of new building techniques. The Corporation has no laboratory facilities but has direct experience of performance in the field and seeks the advice of specialists in the various agencies and departments of the Federal Government in such matters. Research into the factors affecting housing is concerned with the measurement of the demand for new housing, the volume of new housing built and the supply of mortgage money for house construction. The Corporation also co-ordinates and publishes statistical information on housing. Supported by funds provided under the National Housing Act, the Canadian Housing Design Council directs a program toward the improvement of housing design in Canada.

Other Federal Legislation.—The Farm Credit Act, 1959 provides for federal long-term loan assistance for housing as well as for other farm purposes (see pp. 384-385); the Veterans' Land Act, 1942 provides a form of loan and grant assistance to veterans for housing and other purposes (see pp. 284-285); and the Farm Improvement Loans Act, 1944 (see pp. 385-386) provides for guarantees for intermediate- and short-term loans made by approved lending agencies to farmers for housing and other purposes. These three statutes are concerned only incidentally with housing. The primary provisions for housing as such are those in the NHA.

Provincial Assistance.—All provinces except Prince Edward Island have complementary legislation providing for joint federal-provincial housing and land assembly projects. In addition, separate legislation with respect to housing has been enacted by several provinces.

An Act to Improve Housing Conditions, 1948 (QS 1948, c. 6), passed by the Quebec Government, provides for a subsidy on mortgage loan interest charges in excess of 3 p.c. on new dwellings. In Ontario, the Planning Act (RSO 1960, c. 296) empowers municipalities with approved official plans to designate redevelopment areas and acquire and clear land for designated purposes. The Rural Housing Assistance Act (RSO 1960, c. 355) authorizes the establishment of a Crown company—the Rural Housing Finance Corporation—to lend and invest mortgage money for new rural housing. The Junior Farmer Establishment Act (RSO 1960, c. 198) provides loans to young qualified farmers for housing and other purposes.

Four provinces have legislation enabling their government to make grants for the construction of housing for elderly people. Manitoba provides one-third of the construction costs of a two-person unit or \$1,667 per unit, whichever is the lesser, and one-third of the construction costs of a one-person unit or \$1,400 per unit. In addition, grants are made for the construction of hostels and existing buildings—one-third of the construction cost or \$1,200 per bed for the former and one-third or \$700 per bed for existing buildings.

Grants in Ontario may be made only to a limited-dividend housing company which has received a loan under NHA provisions. Grants are calculated at the rate of \$500 for each dwelling unit or 50 p.c. of the costs in excess of the CMHC loan, whichever is the lesser. In British Columbia, capital grants do not exceed one-third of the total cost of the project and the limited-dividend housing company must provide equity amounting to 10 p.c. of the total. In Saskatchewan, capital grants are made up to 20 p.c. of the total capital cost.

Subsection 2.—Housing Activities in 1961

Following the 1960 lull in house-building, there was a significant recovery in 1961. Starts on new dwellings were 15.4 p.c. higher than in the previous year, reaching a total of 125,577. The year's construction began at an unusually brisk pace, reflecting in part the easier borrowing terms available as a result of amendments to the National Housing Act. Later, new starts followed the normal seasonal pattern.

House-building represented a total expenditure of \$1,467,000,000, 17.4 p.c. of the capital investment in the economy and 4 p.c. of the gross national product. Although in good supply, private funds were insufficient to meet the demand for mortgage loans and the gap was bridged with public funds by means of direct loans by CMHC. More than 59,000 dwellings started during 1961 were financed under the National Housing Act, almost 50 p.c. of the year's total as compared with about 33 p.c. in 1960. Conventional mortgage loans, financed by lending institutions, credit unions and private individuals accounted for the remainder. Private resources were called upon to finance a much larger volume of mortgages on existing real estate, an investment field excluded from the National Housing Act.

Construction costs continued to drop during 1961, building material prices declining sufficiently to offset a 2-p.c. rise in labour costs. Rising land costs were apparently countered by changes in productivity and profit margins, resulting in a construction cost of \$10.44 per sq. foot compared with \$10.60 per sq. foot the previous year.

There was immediate national response to the 1960 legislative amendments providing loans for municipalities undertaking sewage treatment projects. Similar enthusiasm greeted NHA changes permitting construction loans for university and college residences. Urban redevelopment work continued on eight projects of earlier initiation and the Federal Government approved a \$3,700,000 contribution to Winnipeg's slum clearance program. Additional projects were under consideration for Hamilton and Kingston.

19.—Dwelling Units Started and Completed, by Type, 1952-61 and by Region, 1960 and 1961

Year and Region	Dwelling Units Started					Dwelling Units Completed
	National Housing Act		Conventional Institutional Loans	Other Financing	Total	
	CMHC Loans	Approved Lenders Loans				
	No.	No.	No.	No.	No.	No.
1952.....	3,528	29,163	15,933	34,622	83,246	73,087
1953.....	4,907	33,998	21,091	42,413	102,409	96,839
1954.....	1,215	48,819	32,891	30,602	113,527	101,965
1955.....	2,120	63,073	35,999	37,084	138,276	127,929
1956.....	2,712	40,149	35,687	48,763	127,311	135,700
1957.....	22,333	23,971	32,866	43,170	122,340	117,283
1958.....	35,795	44,533	42,929	41,375	164,632	146,686
1959.....	35,229	26,596	45,198	34,322	141,345	145,671
1960.....	13,788	18,923	40,116	36,031	108,858	123,757
1961.....	23,852	35,334	38,316	28,075	125,577	115,608
1960						
Atlantic Provinces.....	752	602	1,532	5,239	8,125	8,333
Quebec.....	2,741	3,403	11,671	10,774	28,589	31,311
Ontario.....	4,880	11,226	18,596	7,580	42,282	46,982
Prairie Provinces.....	4,002	2,940	5,149	5,767	17,858	23,274
British Columbia.....	1,413	752	3,168	6,671	12,004	13,857
1961						
Atlantic Provinces.....	1,124	1,018	1,813	4,568	8,523	7,969
Quebec.....	5,982	6,765	14,400	7,068	34,215	31,756
Ontario.....	7,973	19,834	13,044	7,293	48,144	43,754
Prairie Provinces.....	7,094	6,287	5,318	4,826	23,525	20,962
British Columbia.....	1,679	1,430	3,741	4,320	11,170	11,167

20.—Dwelling Units Started in Metropolitan Areas and Major Urban Centres, 1960 and 1961

Area or Centre	Population (1961 Census)	Total Dwelling Units Started in 1960	Dwelling Units Started in 1961		
			Single and Two-Family Dwellings	Apartment and Other Multi- Family Dwellings	Total
	No.	No.	No.	No.	No.
Metropolitan Areas—					
Calgary.....	279,062	3,234	3,267	1,147	4,414
Edmonton.....	337,568	2,180	3,019	1,543	4,562
Halifax.....	183,946	1,264	949	416	1,365
Hamilton.....	395,189	2,682	1,410	857	2,267
London.....	181,283	1,840	1,160	639	1,799
Montreal.....	2,109,509	16,345	8,831	8,373	17,204
Ottawa-Hull.....	429,750	4,574	4,343	1,957	6,300
Quebec.....	357,568	2,136	2,304	943	3,247
Saint John.....	95,563	461	464	97	561
St. John's.....	90,838	164	252	—	252
Toronto.....	1,824,481	14,180	5,819	11,699	17,518
Vancouver.....	790,165	4,675	3,269	2,319	5,588
Victoria.....	154,152	955	732	547	1,279
Windsor.....	193,365	496	378	148	526
Winnipeg.....	475,989	3,805	2,589	1,598	4,187
Totals, Metropolitan Areas...	7,898,428	59,001	38,786	32,283	71,069
Major Urban Centres—¹					
Brantford.....	55,201	534	148	—	148
Chicoutimi-Jonquière.....	60,245	264	331	—	331
Fort William-Port Arthur.....	90,490	381	466	87	553
Guelph.....	39,838	306	201	221	422
Kingston.....	53,526	273	148	147	295
Kitchener.....	74,485	1,197	406	408	814
Moncton.....	43,840	193	204	125	329
Niagara Falls.....	22,351	1	5	—	5
Oshawa.....	62,415	526	337	119	456
Peterborough.....	47,185	350	173	—	173
Regina.....	112,141	984	1,242	92	1,334
St. Catharines.....	84,472	153	339	25	364
Sarnia.....	50,976	419	292	151	443
Saskatoon.....	95,526	1,137	1,005	224	1,229
Sault Ste. Marie.....	43,088	266	161	138	299
Shawinigan.....	32,169	61	81	3	84
Sherbrooke.....	66,554	371	407	113	520
Sudbury.....	80,120	310	522	102	624
Sydney.....	33,617	63	53	—	53
Timmins.....	29,270	73	112	—	112
Trois Rivières.....	53,477	287	346	24	370
Totals, Major Urban Centres	1,230,986	8,099	6,979	1,979	8,958
All Other.....	9,071,207	41,758	42,315	3,235	45,550
Canada².....	18,200,621	108,858	88,080	37,497	125,577

¹ Excludes the fringe areas of the major urban centres.² Excludes the Yukon and Northwest Territories.

Operations under the National Housing Act.—The life insurance and trust and loan companies continued to provide the major share of National Housing Act mortgage financing in 1961. These lenders approved loans amounting to over \$439,400,000, or 62 p.c. of total commitments. Central Mortgage and Housing Corporation provided \$263,400,000 from public funds, and the chartered banks made insured mortgage loans of \$261,000. In 1961, 61,353 dwelling units were financed under the Act. Of these, 60,438 were built with mortgage loans (36,810 by approved lenders and 23,628 by the Corporation) and federal-provincial partnership arrangements accounted for 915. In 1960, a total of 37,308 units were financed under the Act.

The volume of insured lending by the life insurance and trust and loan companies increased over 1960 by approximately 89 p.c. The pattern of lending during the year, however, was quite different from that of 1960 when activity was low until after mid-year and then increased. In 1961, lending activity was at a very high rate early in the year

followed by a somewhat lower rate through the summer and then an expansion in the last months of the year. At the year-end, the life insurance and trust and loan companies had approved loans for 36,791 dwellings compared with 21,111 in 1960. Of the 1961 total, the trust companies were responsible for 14,426 units. Previously, their record volume in any year was 5,195 units achieved in 1960. The chartered banks made loans for only 19 dwellings. However, some banks bought NILA insured mortgages from the Corporation through its secondary mortgage marketing operation. The total of 36,810 units financed by all approved lenders in 1961 was higher than the 1960 aggregate of 21,156 by 74 p.c.

Some 71 p.c. of the dwellings financed by approved lenders in 1961 were for owner occupancy—22,704 to be built by merchant builders for sale to owners and 3,494 by owner-applicants who made their own construction arrangements. Loans were also made for 10,612 units of rental accommodation. In 1960, approved lenders made loans to merchant builders for 12,966 dwellings, to owner-applicants for 2,594, and to rental investors for 5,596 units.

With a lending policy that was less restrictive than that in force during the previous year, the Corporation was called upon to approve a volume of mortgage loans sharply exceeding the 1960 total. To ensure an adequate supply of public funds, Parliament approved in September a maximum of \$2,000,000,000, thus increasing by \$500,000,000 the amount that may be advanced by the Government to the Corporation for direct lending purposes. During the year, the Corporation made mortgage loans for 23,628 dwelling units, including 20,298 to be occupied by home owners and 3,326 in limited-dividend housing projects. In 1960, the Corporation made loans for 13,861 dwellings for owner occupancy and 1,591 for rental in limited-dividend projects.

During 1961, Corporation loans were available to qualified owner-applicants in any part of Canada and to merchant builders, provided the houses to be financed had been pre-sold to eligible purchasers. In both instances, applicants were required to submit written evidence that they had been unsuccessful in obtaining loans from an approved lender. The income limitations imposed and later removed in 1960 were not re-introduced. There was a more restrictive lending policy in effect where septic tank installations were proposed.

21.—Mortgage Loans Approved by Lending Institutions, by Type of Property and of Loan, 1952-61 and Quarterly for 1960 and 1961

Year and Period	New Housing		Existing Houses	Other Property	Total
	NHA Loans	Conventional Loans	Conventional Loans	Conventional Loans	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1952.....	219	84	118	82	503
1953.....	256	119	117	89	581
1954.....	464	180	145	115	904
1955.....	639	235	183	138	1,195
1956.....	425	255	177	141	998
1957.....	278	239	150	104	771
1958.....	519	291	208	174	1,192
1959.....	308	343	216	216	1,083
1960.....	242	307	221	263	1,033
1961.....	453	333	300	298	1,384
1960					
1st quarter.....	21	66	43	58	188
2nd quarter.....	63	92	58	82	295
3rd quarter.....	66	78	60	68	272
4th quarter.....	92	71	60	55	278
1961					
1st quarter.....	64	50	66	81	261
2nd quarter.....	158	76	82	68	384
3rd quarter.....	123	92	77	66	358
4th quarter.....	108	115	75	83	381

Loans to Limited-Dividend Housing Companies.—In 1961, 3,326 dwelling units were financed with loans made by the Corporation to limited-dividend companies providing rental accommodation for lower-income families and for elderly persons. Developments approved in 1961 provided 2,747 units for lower-income families and 579 for elderly persons. Municipalities and non-profit organizations sponsored projects totalling 724 units, while entrepreneurs were responsible for 2,602 units. Limited-dividend housing continued to be directed to families of the lower third income group.

Borrower and House Characteristics.—The cost of the average single-family house financed under NHA in 1961 was an estimated \$14,474. Down-payments averaged \$2,475 compared with \$3,033 in 1960, the decrease reflecting the higher loan ratios and greater maximum loans made available late in 1960. Monthly payments of principal, interest and municipal taxes came to \$105 and represented 21.7 p.c. of the borrower's income. Some 34 p.c. of all NHA borrowers had incomes below \$5,000, 56 p.c. had incomes between \$5,000 and \$7,999 and the remainder had incomes of \$8,000 or more. The average income of all NHA borrowers was \$5,810 compared with \$5,620 in the previous year.

Bungalows continued in 1961 to be the main type of dwelling for home-ownership financed under the National Housing Act, representing 79 p.c. of the total of these dwellings. Most of the 1961 dwellings had three bedrooms but there was an increase in the proportion with four bedrooms or more. This resulted in part from the higher maximum loan for such dwellings made available in December 1960.

Home Improvement Loans.—The volume of NHA-guaranteed bank loans for home improvement purposes recorded a substantial increase in 1961. The banks approved 28,097 loans for a total of \$42,600,000 compared with 23,580 loans for \$30,100,000 in 1960. The greater activity arose in part from the extension, late in 1960, of home improvement loans to rental properties and additions to the list of eligible improvements, including fallout shelters.

Loans for University Housing Projects.—There was a ready response during the year to the National Housing Act amendment of Dec. 2, 1960 that provided for Corporation loans to universities to assist in the construction of resident accommodation for students. Loans aggregating more than \$20,000,000 were made to 22 universities and colleges for residences to house some 4,300 students. Preliminary applications had also been received by the year-end from 11 universities which, if approved, would result in loans totalling \$14,700,000 to finance accommodation for an additional 3,500 students. Provincial distribution of 1961 NHA loans for university housing projects was as follows:—

Province	Loans	Amount	Students to be Accommodated
	No.	\$'000	No.
Newfoundland.....	—	—	—
Prince Edward Island.....	—	—	—
Nova Scotia.....	4	3,070	691
New Brunswick.....	1	1,800	428
Quebec.....	7	7,962	1,629
Ontario.....	5	3,715	813
Manitoba.....	2	1,599	288
Saskatchewan.....	2	608	118
Alberta.....	—	—	—
British Columbia.....	1	1,332	336
CANADA.....	22	20,086	4,303

Loans for Municipal Sewage Treatment Projects.—During 1961, 116 municipalities obtained 144 NHA sewage treatment project loans amounting to about \$39,900,000 to assist in resolving the problems arising out of water and soil pollution. At the year-end, there were also on hand 238 preliminary inquiries, representing a loan potential of \$79,300,000.

Loans were made to 78 communities of under 5,000 population; of these, 63 had fewer than 2,000 population and 50 had fewer than 1,000. The availability of federal loans made possible the constructing of sewage treatment plants in many smaller communities where they did not exist before and, in many instances, encouraged the installation of public water systems to replace individual wells. It also enabled many major centres to extend their trunk sewage systems and either enlarge or, where none existed, establish sewage treatment plants. Provincial distribution of 1961 NHA loans for municipal sewage treatment projects was as follows:—

<i>Province</i>	<i>Loans</i>	<i>Amount</i>
	No.	\$'000
Newfoundland.....	2	116
Prince Edward Island.....	4	75
Nova Scotia.....	1	53
New Brunswick.....	3	85
Quebec.....	3	244
Ontario.....	52	25,752
Manitoba.....	7	274
Saskatchewan.....	43	1,822
Alberta.....	12	1,665
British Columbia.....	17	9,841
CANADA.....	144	39,927

Urban Redevelopment.—During 1961, a \$3,700,000 grant was approved by the Federal Government to assist the City of Winnipeg in the acquisition and clearance of 49 acres of city blight. The cleared land will be devoted mainly to new housing, although some will be made available for commerce and industry. Revenues derived from re-use of the land will be shared by the participating governments in proportion to their contributions to the project. Urban re-development projects for the Cities of Kingston and Hamilton were under consideration, and work continued on eight other projects that were initiated prior to 1961.

Federal-Provincial Projects.—During 1961, the Federal Government approved rental housing projects under federal-provincial arrangements in Oshawa, Sudbury, Toronto (Warden Avenue and O'Connor Drive) and Vancouver that will provide 915 dwellings. Investigations into proposals for projects in 18 municipalities were also approved. From 1950 when the first project was approved under federal-provincial partnership arrangements to the end of 1961, a total of 10,520 rental units were approved in 86 projects. Under arrangements with the Housing Commissions of Nova Scotia and Prince Edward Island, projects were approved for 91 and 93 dwellings, respectively, to be built through co-operative groups and societies.

In 1961, approval was given to service 1,084 lots in phased developments of long-term land assembly projects. The sale of 501 lots during the year brought to 9,089 the number of lots serviced and sold.

Mortgage Marketing.—During 1961, the Corporation undertook to encourage the development of a secondary market for NHA insured first mortgages by offering for sale a part of the large and diversified portfolio acquired as a result of extensive lending operations since 1957. Three offerings were made by tender during the year to members of the Investment Dealers' Association of Canada, NHA approved lenders and their NHA approved correspondents. Parcels varied in size from \$250,000 to \$500,000 and both firm bids and 60-day options were permitted. To give purchasers a reasonable time for re-sale, the Corporation agreed in each instance not to sell additional loans until the option period had expired. Insured mortgages auctioned in 1961 all carried an interest rate of $6\frac{3}{4}$ p.c., were fully advanced and were repayable over a period of 25 or 30 years. When requested, the Corporation undertook to continue to service the loans for a small monthly fee.

During the year, a total of \$51,000,000 of mortgages was offered by the Corporation with tenders to be accepted on only \$45,000,000, the balance affording prospective purchasers with a greater choice of area. Proceeds of sales are used to retire Corporation debentures held by the Federal Government.

Housing Research and Community Planning.—The Corporation engages in studies of many facets of housing in Canada and also provides financial assistance to other organizations and to individuals to facilitate research in house design and community planning. During 1961, more than \$1,000,000 was expended by CMHC for this purpose. Progress was made during the year toward establishment of a Canadian Council on Urban and Regional Research, as recommended in the *Report of the Committee of Inquiry into the Design of the Residential Environment* prepared in 1960 by the Royal Architectural Institute of Canada with the assistance of a Federal Government grant.

The Canadian Housing Design Council and the Community Planning Association of Canada continued to receive support from the Corporation. Travelling scholarships, fellowships and bursaries were also provided for students in the fields of housing, planning, urban development and estate management.

CHAPTER XVI.—LABOUR*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Section 1.—The Government in Relation to Labour

Subsection 1.—Federal Labour Legislation

The federal Department of Labour was established in 1900 under the Conciliation Act which provided machinery to aid in preventing and settling labour disputes and required the Department to collect, compile and publish statistical and other relevant information. The Department also assumed the administration of the Fair Wages Policy adopted in the same year for the protection of workmen employed in the execution of Federal Government contracts and on works aided by grants from public funds.

The statutory duty of disseminating information concerning labour and industrial matters is set out in the Department of Labour Act passed in 1909. In addition, the Minister is responsible for the administration of the following statutes: Conciliation and Labour Act (1906); Government Annuities Act (1908)†; Government Employees Compensation Act (1918); Fair Wages and Hours of Labour Act (1935); Unemployment Insurance Act (1940); Vocational Training Co-ordination Act (1942); Reinstatement in Civil Employment Act (1946); Merchant Seamen Compensation Act (1946); Industrial Relations and Disputes Investigation Act (1948); Canada Fair Employment Practices Act (1953); Female Employees Equal Pay Act (1956); and Annual Vacations Act (1958).

Fair Wages Policy.—The Fair Wages Policy applying to all Federal Government contracts was first set forth in a Resolution of the House of Commons (1900) and later incorporated in an Order in Council and amended from time to time. Wages and hours on contracts for construction are now regulated by the Fair Wages and Hours of Labour Act and Order in Council P.C. 2029 of Dec. 22, 1954. Hours of work on construction contracts are limited to eight per day and 44 per week, except in an emergency or in special circumstances where exemption is granted by Order in Council; wages to be paid are those current for the type of work in the district or, if there are no current rates, fair and reasonable rates as determined by the Minister of Labour.

* Except as otherwise noted, this Chapter has been revised under the direction of the Deputy Minister of the Department of Labour, Ottawa.

† Statistics and details of administration under this Act are given in Chapter XXIV on Insurance.

Wages and hours of work on contracts for equipment and supplies are also regulated by Order in Council P.C. 2029. The hours of such work must be those fixed by the custom of the trade in the district where the work is performed, or fair and reasonable hours. The wages must be current or fair and reasonable but in no event shall they be less than those established by statute or regulation of the province in which the work is being performed. This Order in Council contains a clause prohibiting discrimination against any person in matters of employment because of that person's race, national origin, colour or religion, or because he has made a complaint or given information with respect to such alleged discrimination.

*Government Prevailing Rate Employees.**—Many departments and agencies of government employ non-office workers in public buildings, defence establishments, parks and forests, experimental farms, canal operation, airports and government vessels, survey parties, special projects, etc. Such positions are exempt from the operations of the Civil Service Act and rates of pay are fixed by the Treasury Board in consultation with the Department of Labour on the basis of prevailing private industry rates for comparable work in the employment area. Data used in the determination of these pay rates are secured from wage surveys made by Industrial Relations Officers of the Department of Labour, from wage research conducted by the Economics and Research Branch, and from collective agreements and wage rates established under the legislation of some provinces.

The Fair Wages and Prevailing Rates Division of the Industrial Relations Branch also recommends rates of pay for 4,000 commissionaires employed by various government departments and agencies throughout Canada, provides wage data to assist certain Crown corporations in the preparation of their wage schedules, and gives assistance in the establishment of class titles, job descriptions and the application of job evaluation techniques.

Three sets of comprehensive Regulations have been established by the Treasury Board governing hours of work, overtime, vacations, statutory holidays, sick leave, pensions, etc., for (1) prevailing rate workers generally employed, (2) ships' officers and (3) ships' crews.

The Industrial Relations and Disputes Investigation Act.—This legislation came into effect by proclamation on Sept. 1, 1948, revoking the Wartime Labour Relations Regulations in effect since March 1944 and repealing the Industrial Disputes Investigation Act which had been in force from 1907 until suspended by the Wartime Regulations in 1944. The Act protects proceedings commenced and decisions, orders and certifications made under the wartime legislation in so far as these involve services authorized by the Act.

The Act applies only to industries within federal jurisdiction, viz., navigation, shipping, interprovincial railways, canals, telegraphs, steamship lines and ferries, both international and interprovincial, aerodromes and air transportation, radio broadcasting stations, and works declared by Parliament to be for the general advantage of Canada or of two or more provinces. However, the Act provides that provincial authorities if they so desire may enact similar legislation for application to employees within provincial jurisdiction and make mutually satisfactory arrangements with the Federal Government for the administration of such legislation by the federal authorities.

In general, the Act in its important features provides that employees and employers shall have the right to organize and bargain collectively and that trade unions may be certified as bargaining agents for employee groups. Trade unions and employers are required, upon notice, to bargain collectively in good faith. The Act provides for invoking collective bargaining negotiations and for the mediation of conciliation officers and conciliation boards in reaching collective agreements. Employees may change bargaining agents at times under conditions specified in the Act, which also prescribes conditions affecting the duration and renewal of collective agreements. Collective agreements are required to contain provision for the arbitration of disputes concerning the meaning or violation of such agreements and where such provision is lacking application may be made for its establishment.

* Statistics on numbers and earnings of prevailing rate and other groups of federal employees exempt from the Civil Service Act are given at pp. 118-127.

The Act prohibits unfair labour practices, i.e., the interference with or domination of trade unions by employers or interference, discrimination and coercion in trade union activity. The conditions that must be observed prior to strike and lockout action are set down in the Act. Industrial inquiry commissions may be appointed to investigate industrial matters or disputes.

The Minister of Labour is charged with the administration of the Act and is directly responsible for the provisions affecting the appointment of conciliation officers, conciliation boards, industrial inquiry commissions, consent to prosecute, and complaints that the Act has been violated or that a party has failed to bargain in good faith.

The Canada Labour Relations Board administers provisions concerning the certification of bargaining agents, the writing of a procedure into a collective agreement for the final settlement of disputes concerning the meaning or violation of such agreement, and the investigation of complaints made to the Minister that a party has failed to bargain collectively.

Detailed statistics concerning activities under the Act may be found in the Annual Report of the Department of Labour. In brief, from Sept. 1, 1948 to Dec. 31, 1961, the Canada Labour Relations Board received 1,319 applications for certification, 767 of which were granted, 278 rejected, 258 withdrawn and 16 were pending at the end of the period. Of the 835 industrial disputes dealt with under the conciliation provisions of the Act, 727 were settled by conciliation officers and conciliation boards, 53 were not settled, 24 lapsed and 31 were pending at Dec. 31, 1961.

Labour-Management Co-operation Service.—During World War II, production committees based on the principle of joint consultation between labour and management were established in many vital industries. Since 1947 the establishment of labour-management production committees in industry has been encouraged and assisted by the Labour-Management Co-operation Service, a division of the Industrial Relations Branch of the Department of Labour. The number of active committees has grown from 526 in 1947 to approximately 1,732 at Dec. 31, 1961. Their activities are directed toward such objects as better understanding between management and labour, improved production efficiency, improved quality, reduction of waste, accident prevention, good housekeeping and reduction of absenteeism.

Reinstatement in Civil Employment Act.—This Act provides for the reinstatement in their civil employment of discharged members of the Armed Forces and other designated persons. It was originally passed in 1942, revised in 1946, and broadened in its application in 1954. The Act is administered by the Minister of Labour through the National Employment Service (see p. 741).

Canada Fair Employment Practices Act.—This Act, which came into effect on July 1, 1953, prohibits discrimination in employment based on race, colour, religion or national origin. It applies only to industries within federal jurisdiction—those covered by the Industrial Relations and Disputes Investigation Act (see pp. 699-700). This law prohibits acts of discrimination by employers; discrimination by trade unions in regard to membership or employment; the use by employers of employment agencies that practise discrimination; and of advertisements or inquiries in connection with employment that express, directly or indirectly, any limitation, specification or preference as to race, colour, religion or national origin.

Female Employees Equal Pay Act.—This Act came into effect on Oct. 1, 1956, and applies to employers and employees engaged in works, undertakings or businesses coming within federal jurisdiction. The Act, in its principal provision, prohibits an employer from employing a female for any work at a rate of pay that is less than the rate at which a male is employed by that employer for identical or substantially identical work.

Annual Vacations Act.—This Act was passed in January 1958 and became effective by proclamation on Oct. 1, 1958. It provides a one-week vacation with pay for the first year of employment and a two-week vacation for subsequent years. Vacation pay is computed at 2 p.c. of wages, as defined in the Act, for a vacation of one week and 4 p.c. for a vacation of two weeks.

Subsection 2.—Provincial Labour Legislation

Because of the authority given by the British North America Act to provincial legislatures to make laws in relation to local works and undertakings and in relation to property and civil rights, there is a large body of provincial labour legislation dealing with relations between employers and employees and the trade unions representing employees, working conditions, qualifications of tradesmen, compensation for work accidents, and other matters. In each province a Department of Labour is charged with the administration of labour laws. Legislation for the protection of miners is administered by departments dealing with mines. The workmen's compensation law in each province is administered by a board appointed by the Lieutenant-Governor in Council.

Factory legislation and shops legislation in several of the provinces prohibit child labour, regulate the hours of work of women and young persons, and contain provisions to ensure the safety and protect the health of employees in industrial and commercial establishments. All provinces have minimum wage legislation, and most have legislation establishing maximum working hours in at least some types of employment. The industrial standards legislation in Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan and Alberta enables the wages and hours of work agreed upon at a conference of representatives of employers and employees in designated trades to be made the minimum standards throughout the trade concerned in specified areas. The Quebec Collective Agreement Act permits certain terms of collective agreements between employers and trade unions to be made binding on all in the industry throughout the province or in a defined area.

In all provinces there is legislation to protect freedom of association, to promote collective bargaining and to assist in the settlement of industrial disputes. Nine provinces have legislation dealing with apprenticeship and all have legislation providing for the licensing of certain classes of workmen. Eight provinces have equal pay laws, and six have fair employment practices Acts prohibiting discrimination in hiring and conditions of employment and in trade union membership on grounds of race, colour, religion or national origin. All have workmen's compensation laws.

Provincial labour legislation enacted in 1961 is outlined in the following paragraphs.

Newfoundland.—The *Workmen's Compensation Act* was amended, raising the maximum annual earnings on which compensation may be paid from \$3,000 to \$4,000. Dependants' allowances were increased and the increases were made applicable to existing pensioners. The allowance for funeral expenses was increased from \$200 to \$300, the lump sum payable to a widow from \$100 to \$200, and a widow's pension from \$60 to \$75 a month. The monthly allowance for a dependent child under 16 years of age was raised from \$20 to \$25, and for an orphan under 16 from \$30 to \$35. Coverage was extended to learners, and provision was made for bringing members of a volunteer fire brigade under the Act upon the application of the municipality concerned.

The *Logging Camps Act, 1960*, which among other matters lays down health and welfare provisions for logging camps, was amended to authorize the making of regulations providing for the classification and licensing of such camps.

Prince Edward Island.—An amendment to the *Trade Union Act* made it unlawful for a member of the police force of a city, town or village or for a full-time employee of a fire department to engage in a strike or work stoppage.

The *Workmen's Compensation Act* was amended to raise the ceiling on annual earnings from \$3,000 to \$4,000. The monthly payment to a widow was increased from \$50 to \$65. A further provision broadened the definition of "accident" by including in it the words "as well as disablement arising out of and in the course of his employment".

Nova Scotia.—Amendments to the *Workmen's Compensation Act* provided for a higher minimum compensation payment for permanent total disability, and empowered the Workmen's Compensation Board to pay an additional allowance to a totally disabled workman requiring special treatment, services or attendance. Increased compensation in respect of past accidents in temporary total, temporary partial and permanent total disability cases was authorized. All disability pensions paid under the Act are now based on 75 p.c. of earnings, regardless of the date of the accident.

Traction plants and internal combustion engine plants were removed from the coverage of the *Engine Operators Act*. The definition of steam plants was also amended to limit the application of the Act to plants in which steam is used for motive power.

New Brunswick.—An equal pay law, the *Female Employees Fair Remuneration Act*, was enacted, with effect from Sept. 1, 1961, prohibiting an employer from paying a female employee at a lower rate of pay than the rate paid to a male employee "for the same work done in the same establishment". An aggrieved person may file a written complaint with the Minister of Labour. Administrative and enforcement provisions are similar to those in other Canadian equal pay statutes.

Dieticians, nurses and teachers were excluded from the definition of "employee" in the *Labour Relations Act*. A further amendment repealed the provision permitting a municipality to pass a resolution removing its employees from the scope of the Act, with the result that all municipal employees are now covered. The certification sections of the Act were amended to make it clear that the appropriateness of a unit and union membership of employees are to be determined as of the date of the application for certification. A further change is that the Act now authorizes a prosecution for an offence under the Act to be brought by or against a trade union or an employers' organization. Previously, a prosecution could be brought only against such organizations.

The *Fair Wages and Hours of Labour Act*, which formerly required contractors in provincial government construction work to observe an eight-hour day and a 44-hour week, except in special circumstances, was amended to remove the daily limit on hours.

The *Stationary Engineers Act* was amended, giving new regulation-making authority to the Lieutenant-Governor in Council regarding pressure vessels used in storing compressed gas, the storage, distribution and use of the gas, and the licensing of firms handling it.

Quebec.—The *Labour Relations Act* was amended to accelerate conciliation proceedings, to provide for final and binding arbitration of grievances resulting from the interpretation or application of a collective agreement and to ensure that a union's certification and collective agreement remain valid when a business changes hands. Changes with respect to conciliation services include a provision enabling the 14-day period within which a conciliation officer is required to report to be extended on the written agreement of the parties. A council of arbitration (conciliation board) must report within 45 days following the date of the conciliation officer's report and is no longer required to make recommendations but will merely advise the Minister whether or not the dispute has been settled. Previously, strikes and lockouts were prohibited until 14 days had elapsed after receipt by the Minister of a conciliation board report. The restriction on a strike or lockout now comes to an end either 14 days after the Minister receives the report or 75 days after the receipt of the original request for conciliation services (90 days in the case of a first agreement). A new provision requires the Labour Relations Board to give reasons for its decisions. Another provides for the appointment of a second vice-chairman, enabling the Board to sit in three panels.

An amendment to the *Collective Agreement Act* permits a provision in a collective agreement in the construction industry prohibiting strikes, lockouts, slowdowns and picketing to be extended by government decree throughout a specified region. If a no-strike provision is included in a decree, the employers and employees concerned would not be subject to the certification, collective bargaining and conciliation sections of the Labour Relations Act for the duration of the decree, with the result that no employer subject to the decree would be obliged to negotiate an individual collective agreement during the period.

An amendment to the *Education Act* entitled "An Act respecting free education and compulsory school attendance" raised the statutory school-leaving age from 14 to 15 years, effective from July 1, 1962.

Ontario.—The *Construction Hoists Act, 1960-61*, which is to be brought into force by proclamation, provides for the regulation, inspection and licensing of hoists used in the construction industry. Sections of the *Municipal Act* giving municipalities authority to pass by-laws regulating elevators, lifts and construction hoists were deleted since these lifting devices are now subject to provincial control under the Elevators and Lifts Act and the Construction Hoists Act, 1960-61.

Amendments were made to the *Energy Act* requiring any person who installs, repairs, services or removes a gas appliance to be registered under the Act or to be supervised by a registered person.

Manitoba.—A *Tradesmen's Qualifications Act* was passed, effective from Feb. 15, 1962, instituting a system by which qualified tradesmen who have not had an opportunity to take apprenticeship courses may secure a certificate of proficiency on the basis of their work experience by passing a prescribed examination. The Act provides for voluntary certification but also authorizes the adoption of a system of compulsory certification by empowering the Lieutenant-Governor in Council to make regulations prohibiting any person from engaging in a trade unless he holds a valid certificate of proficiency. The Minister of Labour is authorized to issue certificates of proficiency on the recommendation of the examining board set up for each trade.

Amendments to the *Department of Labour Act* enable the Manitoba Labour Board to sit in panels. The Board is also given express authority to take a vote of employees with respect to any matter under the jurisdiction of the Minister of Labour.

An amendment to the *Workmen's Compensation Act* raised the ceiling on annual earnings from \$4,500 to \$5,000. In another amendment, the Board is authorized to pay a clothing allowance to compensate an injured workman who has to wear a prosthetic device for the extra wear on his clothing caused by the use of such a device.

Saskatchewan.—The *Employees' Wage Act, 1961* is a comprehensive wage protection law, incorporating some provisions of the former Act and introducing important new features. In addition to specific provisions regarding manner and frequency of wage payment, the Act provides for the prosecution of an employer who issues a cheque in payment of wages which is not honoured by the bank on which it was drawn, and makes a construction contractor liable for the payment of wages to employees of his subcontractors. Another new provision empowers the Minister of Labour to require an employer who has been convicted of failure to pay wages to an employee to furnish a bond or equivalent security for the payment of wages. The Act also provides for investigation of wage claims and collection of unpaid wages by inspectors of the Department of Labour.

The *Wages Recovery Act*, which enables an employee to file a claim for unpaid wages with a magistrate, was amended to provide a more effective means of enforcing a magistrate's order to pay wages found to be due. The magistrate now may, upon the request of the complainant, file a certified copy of the order in the district court, whereupon the order becomes enforceable as an order of the court.

The *Trade Union Act* was amended to require an employer to negotiate with a union for the settlement of a grievance or dispute which may arise between the time the union first becomes the representative of the employees in a unit and the time of the signing of a first agreement and between the time of the termination of an agreement and its renewal or revision, as well as during the term of an agreement. Another amendment limits the authority of the Labour Relations Board to rescind or amend its orders in cases where a collective agreement is in effect.

The *Employee Pension Plans Registration and Disclosure Act, 1961*, which is administered by the Department of Labour, provides for the registration of employee pension plans and requires every trustee to furnish each employee, employer and employees' organization concerned with a description of the plan and with an annual report. Information gathered concerning such plans will assist in determining whether portable contributory pension plans are practical and desirable.

An amendment to the *Electrical Inspection and Licensing Act* extends the application of the Act to the design of electrical equipment. The Act provides for government regulation of the sale of such equipment and requires it to conform to the Canadian Electrical Code.

The *Radiological Health Act, 1961*, which is to be brought into force by proclamation and to be administered by the Minister of Public Health, is designed to protect radiation workers as well as the general public against radiation hazards. The Act requires the registration of radiation installations and equipment, lays down qualifications of operators, prohibits the employment of expectant mothers and persons under age 18 in work in which there is exposure to ionizing radiation, and provides for the appointment of a Radiological Health Committee to advise the Minister and promote an educational program regarding radiological dangers and protective measures.

Alberta.—The *Workmen's Compensation Act* was amended, implementing the recommendations of a special legislative committee which reviewed the Act in 1960. The amendments raised the ceiling on annual earnings from \$4,000 to \$5,000, and increased benefits in both fatal and disability cases. The allowance for funeral expenses was raised from \$200 to \$250, and provision was made for payment of a sum not exceeding \$50 for a burial plot. The lump sum payable to a widow was increased from \$150 to \$200, a widow's monthly pension from \$60 to \$75, and the monthly pension to a dependent child under age 16 from \$30 to \$40. The maximum additional monthly allowance payable at the discretion of the Board to an orphan child under age 18 was raised from \$10 to \$25. The increases were made applicable to existing pensioners, irrespective of the date of the accident. Another amendment increased the minimum weekly payment of compensation for temporary total or permanent total disability from \$25 to \$35 or average earnings, if less.

The minimum period during which a workman must have been exposed to silica dust in his employment in the province in order to qualify for compensation for silicosis was reduced from three years to 450 work shifts (the equivalent of two years) preceding disablement. Changes were also made with respect to subsistence allowances payable to workmen undergoing treatment away from home.

New sections provide for the payment of additional compensation to a workman in receipt of a permanent partial disability pension who becomes entitled to temporary total compensation during a period of further treatment in respect of the original injury, and permit a workman to receive compensation for an injury sustained in work which he is directed by his employer to do but which is outside the scope of his ordinary employment.

British Columbia.—A number of changes were made in the *Labour Relations Act*. A trade union is now prohibited from making contributions to a political party from union funds, and must make a statutory declaration that it is complying with this provision before an employer may make deductions from wages on behalf of the union under the check-off provisions of the Act. Unions are also required to make copies of an audited financial statement available to their members annually. The provisions permitting the

Minister of Labour to ask a judge of the Supreme Court to decide the legality of a strike, and empowering the judge to nullify a collective agreement, or cancel a union's certification or check-off rights if he found a strike illegal were removed. Other amendments state that the Labour Relations Board may not certify a union that discriminates, contrary to the Fair Employment Practices Act, on grounds of race, religion, colour, ancestry or place of origin; may authorize the Minister to take a settlement vote; and may provide an alternative method of enforcing the Board's orders in unfair labour practice cases.

The *Annual Holidays Act* was amended to make it clear that, for purposes of calculating vacation pay, "wages" include the vacation pay received in the year.

An amendment to the *Health Act* authorized the making of regulations providing for the control of radiation sources and radiation hazards.

Regulation of Wages and Hours of Labour under Industrial Standards Legislation and the Quebec Collective Agreement Act.—The Industrial Standards Acts of Nova Scotia, New Brunswick, Ontario and Saskatchewan and the Alberta Labour Act provide that wages and hours agreed upon at a conference of representatives of employers and employees, called by the Minister of Labour or his representative, may be made legally binding by Order in Council on the industry in the area concerned. The Nova Scotia Act applies only to construction work at Halifax, Dartmouth and Sydney.

In *Nova Scotia*, 12 schedules of hours and wages for individual building trades were in force during the year ended Mar. 31, 1961.

In *New Brunswick*, four schedules for individual building trades were in force during the year ended Mar. 31, 1961.

In *Quebec*, under the Collective Agreement Act, hours and wages and also apprenticeship, vacations with pay and family allowances provisions, established by a collective agreement voluntarily entered into by employers and unions or groups of employees, may be made legally binding by Order in Council on all employers and employees in the industry in the district covered by the agreement, if the parties are sufficiently representative of the industry. At Mar. 31, 1961, 102 agreements covering 225,529 workers and 32,119 employers had been generalized to apply either throughout the province or to a certain district. The agreements in force throughout the province apply to the following industries: building materials, the manufacture of women's coats and suits, dresses, millinery, women's handbags, men's and boys' clothing, men's and boys' hats and caps, men's and boys' shirts, fine gloves and work gloves, shoes, furniture, paint, corrugated and uncorrugated paper boxes, the tanning industry and the casket manufacturing industry. Other agreements concern industries in particular cities or parts of the province, including all building trades and printing trades in large urban centres and in many rural districts.

In *Ontario*, there were 144 wages and hours schedules in force at Mar. 31, 1961. Of these, 68 applied to the building trades, four were for the retail gasoline service industry and 66 covered barbering. Throughout the province, schedules were in effect for five clothing industries and for the hard furniture industry.

In *Manitoba*, the Fair Wage Act provides similar machinery for fixing wages and hours in any business, trade or undertaking except agriculture. Orders in Council under this legislation have been passed fixing wages and hours in the barbering and hair-dressing trades. A schedule for the construction industry applies to private construction work in the larger centres of population as well as to public construction work throughout the province.

In *Saskatchewan*, 17 schedules were in effect at Mar. 31, 1961. The schedule for barbers covered the whole province; others applied to bakers and bakery salesmen, carpenters, electrical workers, painters, and beauty culture operators in one or more areas.

In *Alberta*, 30 schedules were in effect during 1961. These governed, in one or more areas, bakers and bakery salesmen, certain individual building trades, dairy employees, garage and service-station workers, radio service, laundry and dry-cleaning employees and barbers.

Regulation of Hours and Annual Holidays.—Five provinces—Ontario, Manitoba, Saskatchewan, Alberta and British Columbia—have statutes that either place absolute limits on working hours or require time and one-half the regular rate to be paid if work is continued after specified limits. There is, in addition, an Act of limited application in Quebec. In the provinces that have no special hours-of-work legislation, the only statutory regulation of hours, apart from that described above under the Industrial Standards Acts and the Quebec Collective Agreement Act, is that imposed by factories Acts, mines Acts and, in Newfoundland, legislation governing shops. In New Brunswick and Quebec the limits imposed by the factories Acts apply only to women and boys under 18 years of age.

In Ontario there is a maximum eight-hour day and 48-hour week with certain exceptions. In Alberta the maximum daily and weekly hours in all centres with a population of over 5,000 are eight and 44; in the remainder of the province they are eight and 48. In British Columbia hours are limited to eight in a day and 44 in a week. In these three provinces the Acts apply to most workers except farm labourers and domestic servants. In Saskatchewan the Act requires time and one-half to be paid for work after eight hours daily and 44 hours weekly and applies to workers in all industries except agriculture and domestic service. A Manitoba Act covering most industrial workers in the province requires time and one-half to be paid for work done after eight hours in a day and after 48 hours in a week for men and 44 hours for women. In all provinces that have Acts regulating hours, longer hours may be worked in an emergency or by permission of the administrative authority.

Seven provinces—Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia—have legislation in effect providing for annual holidays with pay for workers in most industries, and New Brunswick has legislation requiring annual holidays in the mining and construction industries and for fish, fruit and vegetable packers. In Nova Scotia, New Brunswick, Quebec and Ontario, workers are entitled to a holiday with pay of one week after a year of service; in Manitoba, Saskatchewan, Alberta and British Columbia, a holiday of two weeks with pay must be granted after a year of employment. In Saskatchewan, a worker becomes eligible for a holiday of three weeks after five years of service with the same employer. A worker employed for less than a year is entitled, in Quebec, to a half-day for each month of employment and, in Saskatchewan, to one day for each month. Coal miners in Alberta are entitled to a one-day holiday with pay for every 20 days worked in a month but not more than two weeks in a year.

Farm workers are excluded from the holiday provisions in all provinces, and domestic servants in all but Manitoba and Saskatchewan. In addition, Quebec exempts public corporation employees, janitors and caretakers, and certain part-time workers; Ontario exempts professional workers, salesmen, and funeral directors and embalmers; Manitoba and Saskatchewan exempt ranch and market garden employees, and British Columbia exempts professional workers and horticultural workers.

Minimum Wage Regulations.—In Nova Scotia the minimum wage law applies only to women. In Ontario, although the Act applies to both sexes, minimum wage orders apply only to women. The New Brunswick Act has been applied mostly to women workers; the only male order in effect is one applying to the canning industry. Under the Prince Edward Island legislation, orders have been made recently for women restaurant workers in Charlottetown and Summerside; no rates have been set for male workers. With these exceptions, minimum wage laws and orders apply to both sexes and, except in Newfoundland and in a few orders in British Columbia, set the same rates for male and female workers.

Table 1 shows the minimum rates in effect in December 1961 for several classes of establishment in the principal cities. In Newfoundland, New Brunswick, Saskatchewan and British Columbia the rates set are for the entire province. Elsewhere, excluding Prince Edward Island, rates vary according to zone.

**1.—Minimum Wage Rates for Experienced Workers in Certain Cities, by Sex,
December 1961**

Item, Type of Establishment and Sex	St. John's, Nfld.	Halifax, N.S.	Saint John, N.B.	Montreal, Que.	Toronto, Ont.	Winnipeg, Man.	Regina, Sask.	Ed- monton, Alta.	Van- couver, B.C.
Maximum hours per week to which the rates apply.	M. 48 F. 48	— 48	— 48	48 ¹ 48 ¹	— 48	48 44	44 44	44 44	44 44
	cts. per hour	\$ per week	cts. per hour	cts. per hour	\$ per week	cts. per hour	\$ per week	\$ per week	cts. per hour
Factories.....M.	50	—	65 ²	70	—	66	32	34	75
F.	35	21.60	60	70	30	66	32	34	60
Laundries, etc.....M.	50	—	—	70	—	66	32	34	75
F.	35	21.60	60	70	30	66	32	34	75
Shops.....M.	50	—	—	70	—	66	32	34	65
F.	35	21.60	60	70	30	66	32	34	65
Hotels, restaurants, etc. M.	50	—	—	64 ³	—	66	32	34	65
F.	35	21.60	55	64	30	66	32	34	65
Beauty parlours.....M.	50	—	—	70	—	66	32	34	35 ⁴
F.	35	21.60	60	70	30	66	32	34	35 ⁴
Theatres and amuse- ment places. M.	50	—	—	70	—	66	32	34	75
F.	35	21.60	60	70	30	66	32	34	75
Offices.....M.	50	—	—	70	—	66	32	34	75
F.	35	21.60	60	70	30	66	32	34	75

¹ In hotels and restaurants, the rates apply to a maximum of 54 hours per week.
or processing of fish, vegetables or fruit.
bell boys 56 cents.

² Applies only to canning
³ Chauffeurs, watchmen, stationary enginemen and firemen 70 cents;
⁴ Dollars per week.

Section 2.—The Labour Force*

A current and periodic analysis of the state of employment in Canada was organized in 1945 to provide up-to-date and reliable information concerning the Canadian labour force. A labour force survey, on a sample basis, was conducted in November 1945 and quarterly surveys were carried out thereafter until November 1952, when the survey was placed on a monthly basis. A multi-stage area sample was used involving the selection of progressively smaller sample areas and ultimately of households. Random methods of choice were used at every stage of selection so that all members of the population had an equal chance of inclusion. The present sample covers more than 36,000 households in about 170 different areas of Canada. The estimates of the labour force are restricted to the civilian labour force. In addition to members of the Armed Forces, inmates of institutions and Indians living on reservations are excluded.

The labour force surveys provide a classification of persons 14 years of age or over on the basis of their activity during the week preceding the beginning of interviewing for the survey. The main divisions of the population are defined as follows:—

Labour Force.—The civilian labour force is composed of that portion of the civilian non-institutional population 14 years of age or over who, during the survey week, were employed or unemployed.

Employed.—The employed include all persons who, during the survey week: (a) did any work for pay or profit; (b) did any work which contributed to the running of a farm or business operated by a related member of the household; or (c) had a job but were not at work because of bad weather, illness, industrial dispute, or vacation, or because they were taking time off for other reasons. Persons who had jobs but did not work during the survey week and who also looked for work are included in the unemployed as persons without work and seeking work.

* Prepared in the Special Surveys Division, Dominion Bureau of Statistics.

Unemployed.—The unemployed include all persons who, through the survey week: (a) were without work and seeking work, i.e., did no work during the survey week and were looking for work; or would have been looking for work except that they were temporarily ill, were on indefinite or prolonged layoff, or believed no suitable work was available in the community; or (b) were temporarily laid off for the full week, i.e., were waiting to be called back to a job from which they had been laid off for less than 30 days.

Not in the Labour Force.—Those not in the labour force include all civilians 14 years of age or over (exclusive of institutional population) who are not classified as employed or unemployed. This category includes those going to school, keeping house, too old or otherwise unable to work, and voluntarily idle or retired. Housewives, students and others who worked part time are classified as employed. If they looked for work they are classified as unemployed.

The estimates derived from the labour force surveys are subject to sampling error. In general, the percentage of error tends to decrease as the size of the estimate increases. The chances are about 19 out of 20 that the difference between the estimate and the figure which would have been obtained from a complete count is less than shown below. The sampling variabilities indicated are averages, since sampling error differs from characteristic to characteristic; in particular, for the unemployed the sampling variability is about 40 p.c. higher than the general average.

<i>Size of Estimate</i>	<i>Sampling Variability</i>
10,000.....	3,500
50,000.....	8,000
100,000.....	11,000
500,000.....	24,000
1,000,000.....	33,000
5,000,000.....	58,000
6,000,000.....	60,000

2.—Estimates of the Civilian Labour Force and its Main Components, Annual Averages, 1946-61

NOTE.—Annual averages for 1946-52, inclusive, are based on estimates from quarterly surveys and those for 1953-61 on monthly estimates. Figures do not include inmates of institutions and Indians on reservations. Newfoundland is included from 1950 only.

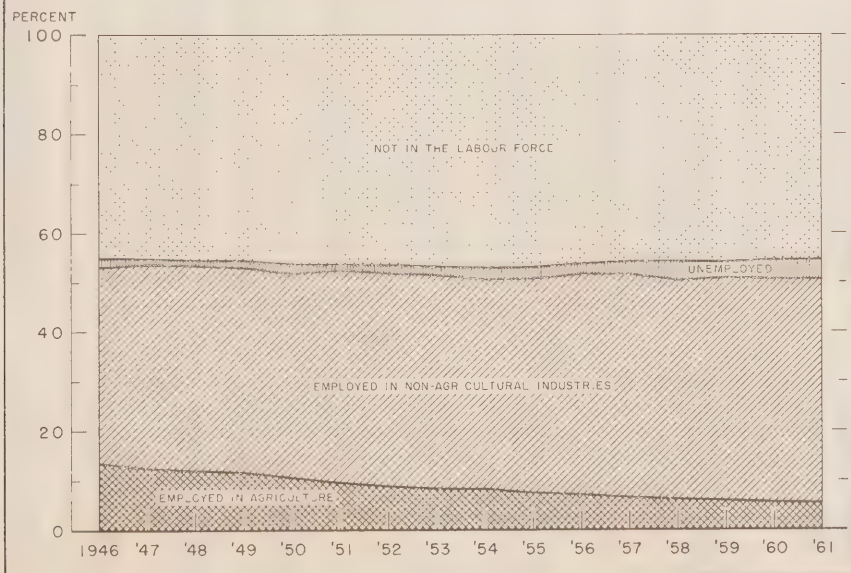
Year	Civilian Popu- lation (14 years of age or over)	Civilian Labour Force (14 years of age or over)							Persons not in the Labour Force (14 years of age or over)
		Employed					Un- employed	Total Labour Force	
		Nonagriculture			Agri- culture	Total (em- ployed)			
		Paid Workers	Other	Total (non-agri- culture)					
	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946.....	8,779	2,990	490	3,480	1,186	4,666	163	4,829	3,950
1947.....	9,007	3,156	555	3,711	1,122	4,832	110	4,942	4,065
1948.....	9,111	3,234	545	3,779	1,096	4,875	114	4,988	4,153
1949.....	9,268	3,298	539	3,837	1,077	4,913	141	5,055	4,213
1950.....	9,615	3,411	547	3,958	1,018	4,976	186	5,163	4,453
1951.....	9,732	3,623	535	4,158	939	5,097	126	5,223	4,509
1952.....	9,956	3,755	523	4,278	891	5,169	155	5,324	4,632
1953.....	10,164	3,842	535	4,377	858	5,235	162	5,397	4,767
1954.....	10,391	3,840	525	4,365	878	5,243	250	5,493	4,898
1955.....	10,597	4,027	519	4,546	819	5,364	245	5,610	4,987
1956.....	10,805	4,286	523	4,809	776	5,585	197	5,782	5,023
1957.....	11,108	4,440	542	4,981	744	5,725	278	6,003	5,105
1958.....	11,357	4,454	529	4,983	712	5,695	432	6,127	5,230
1959.....	11,562	4,615	548	5,163	692	5,856	373	6,228	5,334
1960.....	11,789	4,727	553	5,280	675	5,955	448	6,403	5,386
1961.....	12,010	4,798	577	5,375	674	6,049	469	6,518	5,492

Characteristics of the Civilian Labour Force, 1946-61.—During the year 1961, the civilian non-institutional population 14 years of age or over averaged 12,010,000, a growth of 36.8 p.c. since 1946. The labour force increased 35.0 p.c. from 1946 to an estimated total of 6,518,000 in 1961. This somewhat slower growth of the labour force is reflected in the labour force participation rate; in 1961, the proportion of the population 14 years of age or over in the labour force was 54.3 p.c. compared with 55.0 p.c. in 1946. The chief factors contributing to the decrease in the labour force participation rate were a higher average school-leaving age for children, a higher proportion of persons 65 years or over in the population, and a lower average retirement age. The net effect of these factors was reduced by the higher proportion of women having jobs outside the home.

There were 6,049,000 persons employed in 1961, an increase of 29.6 p.c. since 1946. Employment in agriculture, which averaged 1,186,000 in 1946, declined by 43.2 p.c. to 674,000 in 1961. At the same time, employment in non-agricultural industries increased 54.5 p.c. from 3,480,000 in 1946 to 5,375,000 in 1961; non-agricultural paid workers increased 60.5 p.c. from 1946 to 1961. The level of unemployment fluctuated greatly during the years since 1946; in that year, the unemployment rate averaged 3.4 p.c. of the labour force compared with 7.2 p.c. in 1961.

In 1961, the number of persons outside the labour force averaged 5,492,000, an increase of 39.0 p.c. over the 1946 figure of 3,950,000. This increase, relatively greater than that of the total population 14 years of age or over, was affected by the same factors that contributed to the decrease in labour force participation over the same period. Participation by males 14 years of age or over in the labour force declined from 85.2 p.c. in 1946 to 80.0 p.c. in 1961. On the other hand, the proportion of females of working years in the labour force went up from 24.7 p.c. in 1946 to 28.8 p.c. in 1961. Married women constituted 48.0 p.c. of all employed women in 1961 compared with 27.2 p.c. in 1946.

PERCENTAGE DISTRIBUTION OF THE POPULATION IN THE
LABOUR FORCE AND NON-LABOUR FORCE CATEGORIES, 1946-61
(CIVILIAN POPULATION 14 YEARS OF AGE OR OVER)



As a proportion of the population 14 years of age or over, men and women both showed large decreases in agricultural employment and substantial increases in non-agricultural employment, in unemployment, and in students attending school. The proportion of women keeping house in their own homes was 63.2 p.c. in 1946, rose to 66.7 p.c. in 1953 and then declined to 59.8 p.c. in 1961.

The distribution of the employed by industry group has changed considerably since 1946. As a percentage of the total, employment in service increased from 16.8 p.c. in 1946 to 25.5 p.c. in 1961, in trade from 12.3 p.c. to 16.3 p.c., and in construction from 4.8 p.c. to 6.7 p.c. In agriculture, employment dropped from 25.4 p.c. of the total employed in 1946 to only 11.1 p.c. in 1961. A similar pattern of change was evident in the industrial distribution of employed men. For women, the most notable changes occurred in service, where the proportion of total employed women increased from 33.4 p.c. in 1946 to 47.2 p.c. in 1961, in agriculture where the proportion dropped from 14.8 p.c. to 3.4 p.c. over the 15 years, and in manufacturing which accounted for 23.7 p.c. of total female employment in 1946 compared with 18.7 p.c. in 1961.

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946-61

NOTE.—Percentages are annual averages; those for 1946-52, inclusive, are based on estimates from quarterly surveys and those for 1953-61 on monthly estimates. Newfoundland included from 1950 only.

surveys and those for 1953-61 are monthly estimates. Figures in brackets included from 1953-61

Year	Population (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Un- employed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agri- culture	Non- agri- culture						
MALES									
	'000								
1946.....	4,400	23.4	58.7	3.1	85.2	...	5.5	9.3	14.8
1947.....	4,548	21.5	61.6	2.0	85.1	...	5.3	9.6	14.9
1948.....	4,611	21.1	61.9	2.1	85.1	...	5.2	9.7	14.9
1949.....	4,661	20.9	61.6	2.6	85.1	...	5.0	9.9	14.9
1950.....	4,822	19.5	61.2	3.3	84.0	...	5.1	10.9	16.0
1951.....	4,857	17.9	63.9	2.1	83.9	...	5.0	11.1	16.1
1952.....	4,971	16.6	64.2	2.6	83.4	...	5.4	11.2	16.6
1953.....	5,075	16.1	64.0	2.8	82.9	...	5.6	11.5	17.1
1954.....	5,188	16.2	61.8	4.2	82.2	...	5.8	12.0	17.8
1955.....	5,290	14.8	63.3	4.0	82.1	...	6.0	11.9	17.9
1956.....	5,397	13.6	65.4	3.2	82.2	...	6.2	11.6	17.8
1957.....	5,552	12.7	65.2	4.4	82.3	...	6.3	11.4	17.7
1958.....	5,671	11.6	63.4	6.7	81.7	...	6.8	11.5	18.3
1959.....	5,767	11.2	64.3	5.6	81.1	...	7.3	11.6	18.9
1960.....	5,876	10.6	63.6	6.6	80.8	...	7.6	11.6	19.2
1961.....	5,980	10.3	62.9	6.8	80.0	...	8.1	11.9	20.0
FEMALES									
	'000								
1946.....	4,379	3.6	20.5	0.6	24.7	63.2	5.1	7.0	75.3
1947.....	4,459	3.3	20.4	0.4	24.1	64.7	5.0	6.2	75.9
1948.....	4,530	2.7	20.4	0.4	23.5	65.3	5.2	6.0	76.5
1949.....	4,606	2.3	20.9	0.4	23.6	65.9	4.9	5.6	76.4
1950.....	4,793	1.6	21.0	0.6	23.2	65.9	5.0	5.9	76.8
1951.....	4,874	1.5	21.5	0.5	23.5	66.1	4.9	5.5	76.5
1952.....	4,985	1.3	21.9	0.5	23.7	65.7	4.9	5.7	76.3
1953.....	5,089	0.8	22.2	0.4	23.4	66.7	5.3	4.6	76.6
1954.....	5,203	0.8	22.3	0.6	23.7	66.5	5.3	4.5	76.3
1955.....	5,306	0.7	22.6	0.6	23.9	66.0	5.5	4.6	76.1

3.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1946-61—concluded

Year	Popu- lation (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Un- employed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agri- culture	Non- agri- culture						
FEMALES—concluded									
	'000								
1956.....	5,408	0.7	23.7	0.5	24.9	64.9	5.5	4.7	75.1
1957.....	5,555	0.7	24.5	0.6	25.8	63.9	5.7	4.6	74.2
1958.....	5,686	0.9	24.4	1.0	26.3	63.2	6.1	4.4	73.7
1959.....	5,795	0.8	25.1	0.8	26.7	62.3	6.4	4.6	73.3
1960.....	5,914	0.9	26.1	1.0	28.0	60.9	6.6	4.5	72.0
1961.....	6,030	0.9	26.8	1.1	28.8	59.8	7.0	4.4	71.2

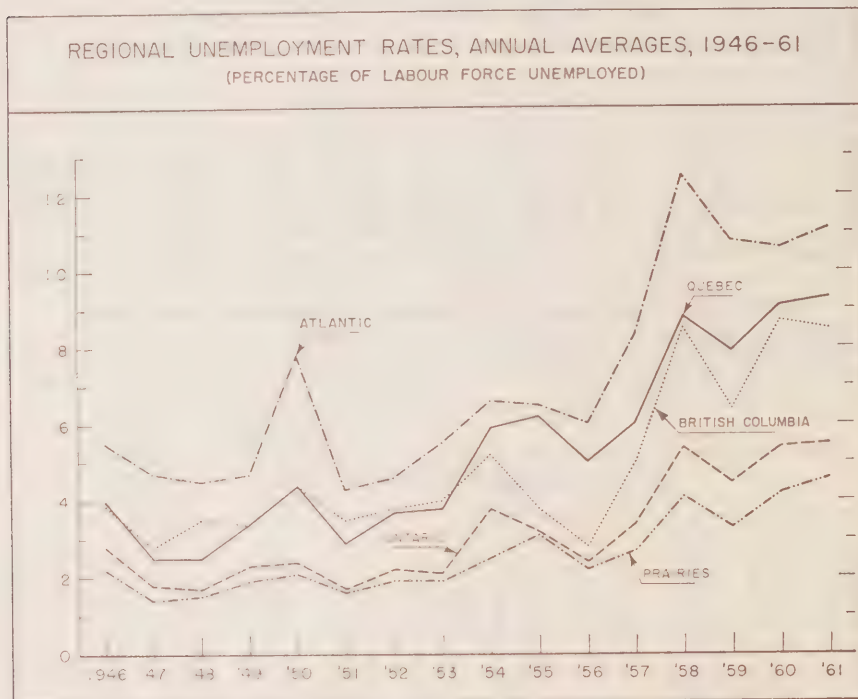
4.—Percentage Distribution of the Employed by Industrial Group, 1946-61

NOTE.—Percentages are annual averages; those for 1946-52, inclusive, are based on estimates from quarterly surveys and those for 1953-61 on monthly estimates.

Year	Total Em- ployed	Percentage Distribution							
		Agri- culture	Other Primary Industries	Manu- facturing	Con- struction	Trans- portation and Other Utilities	Trade	Finance, Insurance and Real Estate	Service
	'000								
1946.....	4,666	25.4	4.0	26.0	4.8	8.1	12.3	2.6	16.8
1947.....	4,832	23.2	3.8	26.2	5.2	8.5	13.2	2.7	17.2
1948.....	4,875	22.5	3.9	26.0	5.9	8.4	13.3	2.9	17.1
1949.....	4,913	21.9	3.6	26.5	6.5	8.3	13.2	2.9	17.1
1950.....	4,976	20.5	3.9	26.4	6.7	8.5	12.9	2.9	18.2
1951.....	5,097	18.4	4.4	26.5	6.8	8.8	14.1	3.0	18.0
1952.....	5,159	17.2	4.2	25.8	6.6	9.3	15.2	3.1	18.6
1953.....	5,235	16.4	3.8	26.4	6.6	9.2	15.6	3.2	18.8
1954.....	5,243	16.8	4.1	25.3	6.4	8.7	15.8	3.2	19.7
1955.....	5,364	15.3	4.5	25.6	6.9	8.7	15.7	3.3	20.0
1956.....	5,585	13.9	4.6	25.7	7.4	8.9	15.8	3.5	20.2
1957.....	5,725	13.0	4.3	26.1	7.6	8.9	15.7	3.6	20.8
1958.....	5,695	12.5	3.7	25.6	7.5	8.9	16.0	3.7	22.1
1959.....	5,856	11.8	3.4	25.5	7.5	8.9	16.2	3.7	23.0
1960.....	5,955	11.3	3.5	24.7	7.0	8.6	16.5	3.8	24.6
1961.....	6,049	11.1	3.0	25.0	6.7	8.4	16.3	4.0	25.5

Employment was substantially higher in 1961 than in 1946 in all regions. British Columbia experienced the largest increase of 37.4 p.c. followed by Ontario with 36.7 p.c., Quebec with 28.1 p.c., the Prairie region with 14.4 p.c. and the Atlantic region (excl. Newfoundland) with 9.2 p.c. In all regions, however, the increase in employment was not as great as the growth of the labour force and, as a consequence, there was a rise in unemployment. Unemployment in Canada averaged 469,000 in 1961, 7.2 p.c. of the labour force. The unemployed were distributed regionally as follows: Quebec 35.9 p.c., Ontario 28.2 p.c., Atlantic 14.1 p.c., Prairie 11.1 p.c. and British Columbia 10.7 p.c. In 1946 the unemployed were distributed among the regions in just about the same proportions.

Similarly, unemployment rates were higher in 1961 than in 1946. In the later year, the unemployed as a percentage of the labour force in each of the five regions was as follows: Atlantic 11.1 p.c., Quebec 9.3 p.c., Ontario 5.5 p.c., Prairie 4.6 p.c. and British Columbia 8.5 p.c. From 1946 on, unemployment rates for the Atlantic region and Quebec were consistently higher than the national average and for Ontario and the Prairie region they were consistently lower. The British Columbia rate was above the national average in every year except 1955 and 1956.



5. - Estimates of Employment and Unemployment, by Region, 1946-61

NOTE: Figures are annual averages; those for 1946-52, inclusive, are based on estimates from quarterly surveys and those for 1953-61 on monthly estimates.

Year	Atlantic ¹		Quebec		Ontario		Prairie		British Columbia	
	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1946.....	392	23	1,283	54	1,654	48	947	21	390	16
1947.....	408	20	1,324	34	1,729	31	957	14	415	12
1948.....	407	19	1,351	34	1,745	31	963	15	418	15
1949.....	406	20	1,376	48	1,774	41	935	18	422	15
1950.....	483	41	1,370	63	1,782	44	931	20	411	19
1951.....	491	22	1,420	42	1,838	32	933	15	416	15
1952.....	479	23	1,448	56	1,867	42	947	18	429	17
1953.....	478	28	1,480	58	1,907	41	938	18	432	18
1954.....	468	33	1,470	92	1,945	77	925	24	437	24
1955.....	478	33	1,493	98	1,993	66	939	30	462	18

¹ Newfoundland included from 1950.

5.—Estimates of Employment and Unemployment, by Region, 1946-61—concluded

Year	Atlantic ¹		Quebec		Ontario		Prairie		British Columbia	
	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1956.....	489	31	1,535	80	2,096	51	975	22	490	14
1957.....	496	45	1,574	101	2,157	77	988	27	511	27
1958.....	476	68	1,577	153	2,133	122	1,004	43	504	47
1959.....	493	60	1,613	138	2,187	103	1,036	35	526	36
1960.....	507	60	1,632	164	2,239	128	1,053	46	524	50
1961.....	526	66	1,644	168	2,261	132	1,083	52	536	50

¹ Newfoundland included from 1950.

Section 3.—Employment, Earnings and Hours*

Monthly records of employment statistics in Canada date from 1921. At that time a survey of employment in business establishments was instituted to provide employment index numbers which would serve as current economic indicators. In 1941 and 1944 this survey was extended to provide information on payrolls, per capita wages and salaries and hours of work. In this period also, separate records for men and women employees were established.

The survey covers the larger establishments (15 persons or more) in the major industrial divisions of forestry, mining, manufacturing, construction, transportation, storage and communication, public utility operation, trade, finance, insurance and real estate. It also covers certain branches of the service industry, including hotels and restaurants, laundries and dry-cleaning plants, recreational and business services. It excludes agriculture, public administration and community services such as health and education. The coverage corresponds closely, therefore, to what might be termed the business sector of the economy. Since the survey does not cover small firms and excludes several industries, these employment records are published in the form of index numbers. The present reference period is the year 1949.

The monthly employment statistics relate to numbers of employees drawing pay in the last pay period of the month. Statistics for casual workers employed for less than one day in the pay period are omitted by definition, as are owners of the business, even though they receive part of the return on their investment in the form of salary. The reported payrolls include payments for straight time and overtime work, and also shift premiums, regularly paid production, incentive and cost of living bonuses, and commissions. Straight time and overtime hours and hours credited to wage-earners absent on paid leave during the reported pay periods are required. Payrolls and hours relating to periods exceeding one week are reduced to weekly equivalents for accumulation with data from employers paying each week.

Subsection 1.—Employment and Weekly Wages and Salaries

The composite employment index (1949 = 100) rose almost without interruption from a postwar recession level of 46.9 in 1921 to a high of 62.8 in the boom year of 1929, but the severe depression that followed reduced the annual figure to a low of 44.0 in 1933. Slow recovery in the next six years left the 1939 index slightly lower than in 1929. However, after the outbreak of the Second World War in the autumn of 1939, employment soon started to increase under the stimulus of production for military requirements. The wartime peak of 93.0 was reached in 1943 when the index was more than 50 p.c. above its 1939 level. A declining tendency that became evident in 1944 persisted after the termination of the War in 1945 but the impact of cutbacks in wartime production was cushioned by public demand for goods and services that had been largely unavailable during the War, so that the over-all loss recorded in 1946 was small. The index showed successive gains

* Prepared in the Employment Section, Labour Division, Dominion Bureau of Statistics.

from 1947 until the first postwar peak of 113.1 was reached in 1953. A slight decline in 1954 was followed by further advances that brought the index to 122.6 in 1957. Since that year, the industrial composite index has not varied greatly, fluctuating around levels some 3 to 4 p.c. below the 1957 peak. Other measures of total employment, including community services and government, have recorded steady gains since 1957.

In 1961 there was general recovery in employment dating from early spring. Among goods-producing industries, recovery was strongest in durable goods manufacturing and construction, although year-end employment levels were still well below the earlier cyclical peak of 1959. Substantial spring recovery in forestry levelled off and, apart from seasonal movements, employment in this industry showed very little change in the latter half of the year. Early recovery in mining was not maintained and there was no significant net change over the year. Among service-producing industries, employment in finance and the various service component industries continued to rise. Trade showed small gains, while transportation, storage and communication continued a gradual long-term decline.

6.—Annual Average Index Numbers of Employment by Industrial Division, Significant Years 1921-61, and Monthly Indexes 1961

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Year and Month	Forestry (chiefly logging)	Mining	Manufacturing	Construction	Transportation, Storage and Communication	Public Utility Operation	Trade	Finance, Insurance and Real Estate	Service ¹	Industrial Composite
Averages—										
1921.....	51.3	56.1	44.0	30.3	66.5	34.3	41.8	..	34.6	46.9
1926.....	49.5	57.0	49.9	45.1	73.3	41.4	44.7	..	41.1	52.6
1933.....	33.1	55.8	40.5	37.2	56.5	45.1	50.5	..	44.1	44.0
1939.....	59.3	93.7	56.3	62.0	59.8	54.9	61.5	..	56.8	60.1
1940.....	82.2	95.8	65.1	47.1	62.2	56.0	63.7	67.3	57.9	64.7
1941.....	91.0	99.0	82.6	68.6	70.1	59.2	68.2	69.5	66.1	77.4
1942.....	95.1	95.9	101.6	70.2	74.6	58.0	68.0	72.9	70.5	87.9
1943.....	87.3	88.7	111.5	69.4	79.5	56.8	67.6	73.4	74.8	93.0
1944.....	104.4	86.5	110.6	51.9	82.6	57.0	71.6	75.0	79.6	92.5
1945.....	119.7	82.3	100.0	53.8	86.0	61.1	76.2	77.4	81.1	88.8
1946.....	129.9	86.9	91.0	69.5	89.3	71.1	83.4	85.3	88.3	88.2
1947.....	149.6	88.6	97.2	85.6	95.4	76.7	90.2	91.5	94.6	95.7
1948.....	138.4	97.2	100.1	95.4	99.0	89.0	96.3	96.0	99.1	99.7
1949.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	104.8	106.0	101.4	103.1	100.2	101.2	103.6	105.9	101.0	102.1
1951.....	140.3	111.0	108.1	110.7	106.8	103.7	107.4	116.2	103.3	109.1
1952.....	119.5	116.9	109.9	123.1	110.9	108.0	110.4	122.1	107.0	111.9
1953.....	98.3	110.8	113.0	118.1	111.2	112.4	113.1	122.4	108.8	113.1
1954.....	96.3	110.4	107.3	110.6	109.0	116.1	114.8	128.0	111.7	109.9
1955.....	102.9	113.7	109.8	115.0	110.8	119.2	118.7	132.1	115.0	112.9
1956.....	113.2	122.7	115.8	131.8	118.3	126.3	126.3	137.1	125.1	120.7
1957.....	99.3	127.2	115.8	135.7	120.4	133.6	131.8	145.0	131.9	122.6
1958.....	75.9	123.5	109.8	126.2	115.5	137.6	131.6	149.3	136.1	117.9
1959.....	78.9	123.4	111.1	130.3	114.3	138.7	135.3	153.2	139.3	119.7
1960.....	84.0	120.1	109.5	125.7	111.1	137.8	136.7	156.7	143.2	118.7
1961.....	71.6	116.5	108.9	121.7	108.6	138.3	137.8	163.1	148.9	118.1
1961—										
January.....	76.3	113.3	104.3	98.1	103.0	131.9	133.5	159.6	137.2	111.6
February.....	66.1	114.0	104.6	96.9	102.5	132.0	131.4	159.7	137.5	111.0
March.....	41.8	113.0	104.9	98.0	103.7	132.2	133.8	160.1	138.9	111.1
April.....	34.0	111.8	105.4	106.6	106.7	133.4	134.2	161.1	143.0	112.6
May.....	53.3	117.4	108.4	123.1	109.2	138.5	136.0	161.9	148.8	117.2
June.....	76.6	119.7	111.2	134.3	112.0	142.1	137.5	163.0	155.2	121.3
July.....	82.9	121.0	110.9	143.4	113.5	144.4	137.2	163.5	157.1	122.5
August.....	77.4	120.2	113.1	145.5	113.8	144.6	137.7	163.8	162.3	123.9
September.....	85.3	118.5	112.8	140.6	112.5	142.1	139.8	163.5	155.8	123.3
October.....	95.2	117.1	112.1	136.9	110.9	140.7	141.5	166.8	152.7	122.9
November.....	90.0	116.6	110.9	127.9	109.8	139.5	144.5	167.0	150.7	121.6
December.....	80.8	115.1	107.9	109.5	105.8	137.7	146.0	166.8	148.1	117.8

¹ Consists mainly of hotels, restaurants, laundries, dry-cleaning establishments and business and recreational services.

7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1956-61

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Industry	1956	1957	1958	1959	1960	1961
Forestry (chiefly logging)	113.2	99.3	75.9	78.9	84.0	71.6
Mining	122.7	127.2	123.5	123.4	120.1	116.5
Metal mining.....	126.8	135.3	135.7	140.8	137.3	131.9
Gold.....	76.5	77.0	75.0	73.6	73.2	70.8
Other metal.....	173.5	191.7	192.4	203.5	197.0	188.8
Iron.....		221.6	221.5	236.8	288.9	254.5
Fuels.....	110.4	109.8	102.9	93.9	89.5	84.6
Coal.....	67.3	61.4	56.4	48.6	45.7	40.7
Oil and natural gas.....	258.8	287.0	282.8	278.8	277.8	273.5
Non-metal.....	141.9	138.7	129.6	131.9	132.2	139.7
Asbestos.....	..	..	..	166.1	173.8	179.9
Manufacturing	115.8	115.8	109.8	111.1	109.5	108.9
Durable goods.....	126.4	125.3	114.8	115.5	112.6	110.6
Non-durable goods.....	106.6	107.6	105.6	107.3	106.8	107.5
Foods and beverages.....	109.6	111.4	112.3	114.6	114.4	114.2
Meat products.....	123.8	124.7	130.0	139.3	136.0	134.4
Dairy products.....	109.2	114.3	121.9	125.4	124.2	124.7
Canned and cured fish.....	114.4	112.6	113.9	113.1	109.7	114.8
Canned and preserved fruits and vegetables.....	110.5	116.7	109.8	110.3	112.4	109.4
Grain mill products.....	103.1	103.6	104.3	103.8	102.9	101.1
Bread and other bakery products.....	108.8	109.2	109.4	109.9	111.2	110.4
Biscuits and crackers.....	94.1	93.6	92.2	91.2	90.7	92.6
Distilled and malt liquors.....	108.9	106.8	105.8	106.0	101.9	99.0
Other beverages.....	120.8	125.7	130.3	137.8	143.5	146.0
Confectionery.....	87.6	90.8	89.2	88.7	89.0	86.1
Tobacco and tobacco products.....	89.0	91.2	99.1	96.2	90.2	89.7
Rubber products.....	114.3	110.4	99.5	106.2	101.0	98.9
Leather products.....	89.5	88.6	86.0	83.2	83.8	87.6
Boots and shoes (except rubber).....	92.5	92.9	91.4	94.8	91.2	94.6
Other leather products.....	84.0	80.8	76.2	76.3	71.0	75.1
Textile products (except clothing).....	86.8	84.4	77.5	78.8	77.1	78.3
Cotton yarn and broad woven goods.....	88.2	83.7	75.6	72.4	68.2	72.0
Woolen goods.....	74.4	70.2	58.8	60.6	62.3	61.1
Synthetic textiles and silk.....	85.5	85.3	79.8	82.7	83.8	83.9
Clothing (textile and fur).....	94.0	94.2	90.7	92.4	89.9	90.5
Men's clothing.....	100.8	100.2	93.1	93.0	90.3	91.8
Women's clothing.....	92.6	94.6	95.8	97.2	96.4	99.1
Knit goods.....	81.6	81.0	76.3	78.4	73.1	72.0
Fur goods.....	69.5	69.6	67.8	70.0	66.2	64.8
Wood products.....	110.3	105.5	102.6	103.5	103.2	102.9
Saw and planing mills.....	112.4	105.0	103.5	103.6	104.4	105.2
Furniture.....	111.8	112.5	109.2	112.6	110.7	109.5
Other wood products.....	98.6	94.6	85.7	85.6	82.9	78.9
Paper products.....	123.7	123.5	121.1	123.2	124.0	123.7
Pulp and paper mills.....	126.3	124.4	120.9	124.2	125.3	124.7
Other paper products.....	117.4	121.1	121.4	121.0	120.8	121.4
Printing, publishing and allied industries.....	115.3	119.6	119.1	121.3	123.8	124.1
Iron and steel products.....	112.4	113.4	102.6	109.7	106.1	102.9
Agricultural implements.....	58.9	59.9	63.8	78.2	69.1	62.8
Boilers and plate work.....	115.5	126.9	115.8	117.4	114.5	110.5
Fabricated and structural steel.....	153.7	174.6	159.2	163.0	153.3	148.4
Hardware and tools.....	107.3	97.8	91.5	99.5	100.0	100.4
Heating and cooking appliances.....	106.0	101.5	99.1	106.1	96.7	95.9
Iron castings.....	107.4	105.3	95.6	99.8	91.8	90.1
Machinery manufactures.....	122.4	124.7	107.1	107.1	105.8	104.2
Industrial machinery.....	..	134.6	113.2	116.6	116.1	114.8
Primary iron and steel.....	123.3	124.2	103.8	119.8	120.3	116.6
Sheet metal products.....	113.5	109.8	102.1	110.3	107.8	104.6
Wire and wire products.....	116.9	117.6	111.2	118.3	116.3	109.9
Transportation equipment.....	141.6	142.1	123.8	112.3	106.8	105.0
Aircraft and parts.....	352.0	391.2	366.0	263.6	243.4	258.9
Motor vehicles.....	134.4	124.9	102.0	106.0	104.3	99.7
Motor vehicle parts and accessories.....	120.1	112.9	100.4	107.1	103.6	102.8
Railway and rolling-stock equipment.....	93.4	91.5	75.2	68.5	61.6	55.4
Shipbuilding and repairing.....	149.1	154.9	136.9	128.3	126.1	126.1
Non-ferrous metal products.....	132.5	128.3	122.3	126.3	129.2	124.3
Aluminum products.....	138.5	136.9	129.3	139.4	143.5	138.7
Brass and copper products.....	112.2	107.5	103.5	110.4	103.0	102.7
Smelting and refining.....	156.6	151.1	142.2	141.6	151.6	142.2

**7.—Annual Average Index Numbers of Employment, by Industrial Division and Group,
1956-61—concluded**

Industry	1956	1957	1958	1959	1960	1961
Manufacturing—concluded						
Electrical apparatus and supplies.....	152.2	150.4	135.7	135.8	133.1	132.9
Heavy electrical machinery.....	..	139.8	121.6	111.8	105.4	99.4
Telecommunication equipment.....	..	225.2	211.7	210.5	214.3	228.1
Non-metallic mineral products.....	134.0	132.2	133.2	143.1	140.0	138.2
Clay products.....	112.5	102.3	102.1	101.8	89.8	85.8
Glass and glass products.....	135.0	132.1	133.5	149.3	151.0	155.3
Concrete products.....	..	..	..	..	249.2	232.9
Products of petroleum and coal.....	133.5	140.0	139.7	138.5	137.5	137.0
Petroleum refining.....	..	..	141.8	140.7	140.3	139.9
Chemical products.....	127.7	133.5	131.2	129.4	132.3	131.4
Medicinal and pharmaceutical preparations.....	115.8	117.1	119.0	119.2	118.0	119.2
Acids, alkalis and salts.....	132.9	146.9	148.1	145.5	155.3	154.9
Other chemical products.....	129.7	134.5	130.7	128.4	130.8	129.3
Miscellaneous manufacturing industries.....	108.8	113.7	119.9	126.5	130.3	137.8
Construction.....	131.8	135.7	126.2	130.3	125.7	121.7
Building and general engineering.....	140.2	144.4	127.6	129.0	121.9	117.7
Building.....	145.5	147.7	130.1	136.5	128.6	122.4
General engineering.....	117.8	130.8	117.1	98.0	94.0	97.9
Highways, bridges and streets.....	118.4	122.0	124.2	132.3	132.0	128.5
Transportation, Storage and Communication	118.3	129.4	115.5	114.3	111.1	108.6
Transportation.....	111.9	111.8	105.0	104.5	101.4	99.2
Air transport and airports.....	184.8	190.7	187.3	192.9	211.4	219.5
Steam railways.....	109.0	107.7	97.7	95.6	89.5	85.0
Maintenance of equipment.....	111.2	106.9	92.6	87.0	77.8	74.8
Maintenance of ways and structures.....	101.6	102.2	93.5	93.9	84.8	79.1
Transportation—steam railways.....	110.7	108.5	98.5	96.0	91.7	87.3
Telegraphs.....	119.8	126.8	122.3	121.9	117.9	114.1
Water transportation.....	101.7	100.1	96.9	94.6	92.7	90.2
Electric and motor transportation.....	119.0	123.5	124.1	129.3	132.3	135.6
Urban and interurban transportation.....	87.5	86.5	84.4	82.3	82.0	80.9
Truck transportation.....	175.2	189.1	191.5	211.6	216.9	220.8
Storage.....	116.2	115.8	115.3	114.4	108.6	106.3
Grain elevators.....	107.8	104.2	104.9	103.2	100.1	97.5
Storage and warehouses.....	141.4	150.5	145.9	147.0	133.4	132.3
Communication.....	162.6	167.4	171.0	166.5	163.8	160.1
Radio broadcasting.....	285.7	294.2	307.1	319.6	339.6	357.1
Telephone.....	143.0	155.7	154.2	148.3	143.6	138.5
Public Utility Operation.....	126.3	133.6	137.6	138.7	137.8	138.3
Electric light and power.....	127.9	133.9	136.2	135.5	134.9	136.1
Other public utilities.....	118.2	132.6	143.8	152.0	149.3	146.5
Trade.....	126.3	131.8	131.6	135.3	136.7	137.8
Wholesale.....	128.0	133.2	131.8	134.8	136.1	136.1
Retail.....	125.4	131.0	131.6	135.6	137.1	138.7
Food.....	151.4	164.9	171.9	178.8	189.1	194.7
Department stores.....	112.4	114.6	113.9	117.4	118.8	121.4
Variety stores.....	119.1	126.9	125.9	129.2	129.7	131.2
Automotive products.....	156.3	166.0	160.8	164.9	166.1	163.1
Finance, Insurance and Real Estate.....	137.1	145.0	149.3	153.2	156.7	163.1
Banking, investment and loan.....	140.5	148.4	150.1	153.6	157.5	164.1
Insurance.....	129.3	137.1	145.1	149.7	152.4	157.3
Service.....	125.1	131.9	135.1	139.3	143.2	148.9
Hotels and restaurants.....	120.2	125.5	125.6	128.6	130.1	129.9
Laundries and dry-cleaning plants.....	110.0	114.0	115.0	113.3	114.1	122.0
Business service.....	..	..	..	245.9	246.1	263.9
Industrial Composite.....	120.7	122.6	117.9	119.7	118.7	118.1

8.—Annual Average Index Numbers of Employment, by Province 1939-61, and Monthly Indexes 1961

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Year and Month	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
Averages—											
1939.....		64.1	66.8	59.6	64.6	57.3	59.7	71.4	55.1	55.8	60.1
1940.....		67.2	71.4	67.4	67.4	64.2	63.4	70.1	57.4	58.0	64.7
1941.....		75.7	90.0	82.1	80.3	77.9	74.1	76.1	65.5	67.9	77.4
1942.....		70.8	103.3	89.8	94.1	87.0	80.0	78.1	70.9	82.2	87.9
1943.....		74.7	106.8	95.0	100.9	90.0	83.1	81.5	74.3	84.5	93.0
1944.....		85.9	105.0	98.4	99.1	89.5	85.8	85.5	77.6	92.5	92.5
1945.....		81.9	101.5	98.6	92.8	86.7	85.3	86.4	76.3	87.5	88.8
1946.....		87.2	95.4	98.1	90.4	86.8	89.6	92.2	82.6	83.6	88.2
1947.....		93.3	92.1	104.3	97.8	94.7	93.6	97.2	88.1	97.1	95.7
1948.....		102.6	99.6	105.2	101.2	98.9	97.2	99.5	93.7	101.3	99.7
1949.....		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950.....		110.3	95.6	102.6	100.5	102.7	100.8	100.8	104.5	100.8	102.1
1951.....	111.7	112.6	100.3	109.0	109.2	110.4	108.9	106.0	111.4	120.8	106.7
1952.....	130.2	123.2	104.0	109.5	113.4	112.0	108.0	111.4	120.8	108.2	113.1
1953.....	140.4	115.5	101.0	100.8	112.4	114.5	107.0	116.2	128.5	108.2	111.9
1954.....	128.0	109.9	97.6	98.0	109.2	110.6	104.7	118.0	128.0	106.3	109.9
1955.....	131.1	114.2	97.1	103.5	112.5	113.5	105.2	117.0	133.0	111.9	112.9
1956.....	136.9	117.4	101.7	110.1	120.1	121.4	108.6	121.1	148.5	121.5	120.7
1957.....	130.1	115.2	100.2	103.8	121.5	124.3	110.9	125.3	152.2	123.9	122.6
1958.....	122.6	114.9	95.5	98.0	117.0	119.6	108.7	128.6	150.5	114.7	117.9
1959.....	125.8	126.3	95.3	101.7	118.5	121.3	112.2	130.0	155.0	115.1	119.7
1960.....	129.7	128.5	95.5	103.4	118.6	119.2	111.0	126.0	153.3	114.7	118.7
1961.....	131.7	130.7	94.0	103.9	118.3	118.7	110.0	123.1	154.2	112.3	118.1
1961—											
January.....	117.9	105.4	87.6	99.4	111.0	113.8	104.7	111.5	143.7	105.2	111.6
February.....	114.3	110.2	89.1	95.8	110.6	113.3	102.9	110.3	142.9	105.6	111.0
March.....	106.7	108.9	84.4	95.9	110.0	113.7	103.4	112.9	143.2	107.5	111.1
April.....	107.0	111.2	86.4	88.7	112.3	115.1	105.1	116.8	143.9	108.8	112.6
May.....	117.9	131.9	96.3	99.2	116.6	118.3	109.9	125.4	153.7	112.3	117.2
June.....	142.4	146.5	97.6	108.5	121.3	120.8	113.4	130.7	161.9	116.0	121.3
July.....	149.5	145.0	102.4	111.9	122.8	120.6	115.6	132.7	164.0	118.8	122.5
August.....	142.8	149.7	99.1	112.5	121.7	122.7	116.2	132.8	166.0	118.9	123.9
September.....	147.1	147.3	98.5	110.4	124.1	122.3	115.4	132.3	163.7	117.9	123.3
October.....	158.2	144.5	98.2	109.0	124.0	122.5	114.4	129.5	160.9	115.0	122.9
November.....	149.2	144.1	97.5	107.5	123.3	122.0	111.4	124.2	155.5	113.1	121.6
December.....	127.5	123.2	93.4	107.6	118.5	119.7	108.2	117.7	150.9	108.7	117.8

9.—Annual Average Index Numbers of Employment, by Metropolitan Area 1939-61, and Monthly Indexes 1961

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1949=100.

Year	Montreal	Quebec	Toronto	Ottawa-Hull	Hamilton	Windsor	Winnipeg	Vancouver
Averages—								
1939.....	60.9	67.5	56.3	57.0	53.1	47.1	59.2	49.7
1940.....	64.2	69.5	61.9	63.5	63.0	56.3	62.8	53.5
1941.....	76.5	87.3	74.4	77.5	79.3	79.0	74.4	64.2
1942.....	87.6	111.9	87.0	82.7	92.5	97.8	79.7	88.7
1943.....	97.6	135.7	93.6	85.3	92.5	105.7	83.6	105.9
1944.....	97.7	134.1	95.0	84.8	89.7	100.8	87.2	104.6
1945.....	90.4	109.3	89.2	82.8	87.6	84.1	85.9	96.1
1946.....	88.6	85.4	86.7	85.1	82.2	82.9	90.3	85.9
1947.....	94.3	93.2	93.2	91.4	91.6	92.2	93.9	96.9
1948.....	97.1	100.5	97.3	95.5	96.9	94.5	97.1	102.1
1949.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	101.3	98.7	104.1	103.1	100.8	102.2	100.1	99.0
1951.....	106.6	101.6	110.7	108.4	109.5	107.7	102.7	101.4
1952.....	110.9	105.2	113.3	108.9	109.2	107.0	104.0	100.1

**9.—Annual Average Index Numbers of Employment, by Metropolitan Area 1939-61, and
Monthly Indexes 1961—concluded**

Year and Month	Montreal	Quebec	Toronto	Ottawa- Hull	Hamilton	Windsor	Winnipeg	Van- couver ¹
Averages—concluded								
1953.....	113.7	110.8	119.8	109.2	111.1	110.9	103.9	102.1
1954.....	110.7	110.5	120.1	109.9	103.6	91.5	103.4	102.6
1955.....	113.4	108.0	121.6	114.0	106.4	103.4	104.6	107.9
1956.....	120.2	111.0	128.3	119.6	113.8	104.9	106.8	117.4
1957.....	124.6	110.8	132.1	120.3	114.4	95.9	107.7	120.4
1958.....	121.5	108.1	131.0	121.2	105.0	78.6	107.5	114.8
1959.....	123.3	110.4	131.3	124.9	112.0	79.3	111.3	116.0
1960.....	123.1	110.4	129.9	124.2	111.3	76.2	111.4	113.8
1961.....	123.3	113.3	131.8	127.9	108.1	72.8	110.3	111.3
1961—								
January.....	117.7	101.6	126.8	118.1	103.3	71.6	106.8	107.2
February.....	118.1	102.4	126.7	118.0	103.7	72.3	104.9	106.8
March.....	118.9	105.4	126.9	119.0	104.4	72.6	105.7	108.0
April.....	121.7	108.5	128.7	122.1	105.9	72.7	107.4	109.3
May.....	123.1	113.3	130.6	127.6	108.3	74.4	110.8	111.1
June.....	125.0	115.8	132.8	130.2	110.1	74.6	113.0	113.6
July.....	124.5	119.0	132.4	131.0	109.8	68.1	113.4	115.5
August.....	125.8	120.1	134.9	135.5	110.3	73.4	114.2	116.6
September.....	126.4	120.1	134.7	133.8	110.4	74.1	113.7	114.3
October.....	127.2	120.0	135.9	134.7	110.6	73.5	113.4	112.1
November.....	127.5	119.1	136.5	134.3	111.0	74.0	110.8	112.0
December.....	124.1	114.6	134.4	130.4	109.2	72.9	109.0	109.0

¹ Includes New Westminster from 1956.

In the years for which current payroll statistics have been obtained from industrial establishments, average weekly wages and salaries have shown a very large increase, rising from \$23.44 in 1939 to \$78.11 in 1961. Less than 16 p.c. of the advance was recorded during the years of the Second World War ending in 1945. With the wartime regulation of pay rates (as of prices) there was a great deal of labour dilution in this period through employment of unskilled and part-time workers, including many inexperienced women. Gains then resulted largely from substantial amounts of overtime work and a concentration of employment in war industries, in which earnings generally exceeded those in industries having low priority in labour procurement. Following relaxation of wage restrictions in December 1949 and the progressive lifting of price controls, the upward movement in per capita earnings gained momentum and average annual increases from 1947 to 1961 were more than twice as much as those between 1939 and 1945. Variations over the years in the occupational and industry mix within the heterogeneous group of industries represented in the per capita weekly wage and salary figures also affected per capita earnings figures. On the whole, these factors have had a buoyant effect. More recently, year-to-year percentage increases have tended to level, those for 1960 and 1961 approximating 3 p.c.

10.—Annual Index Numbers of Employment and Payrolls, with Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1959-61

Industry, Province and Urban Area	Employment (1949=100)			Payrolls (1949=100)			Average Weekly Wages and Salaries		
	1959	1960	1961	1959	1960	1961	1959	1960	1961
Industry							\$	\$	\$
Forestry (chiefly logging).....	78.9	84.0	71.6	141.3	157.5	137.8	71.63	74.85	77.05
Mining.....	123.4	120.1	116.5	217.6	218.8	216.9	90.76	93.80	95.90
Manufacturing.....	111.1	109.5	108.9	193.3	197.0	202.8	75.84	78.19	80.73
Durable goods ¹	115.5	112.6	110.6	201.1	202.5	206.0	81.67	84.20	87.08
Non-durable goods ¹	107.3	106.8	107.5	185.6	191.7	199.6	70.52	72.86	75.25
Construction.....	130.3	125.7	121.7	241.1	243.8	242.2	76.55	80.46	82.57
Transportation, storage and communication.....	114.3	111.1	108.6	189.4	190.1	194.2	79.65	82.32	85.87
Public utility operation.....	138.7	137.8	138.3	257.6	266.4	276.4	88.08	91.52	94.52
Trade.....	135.3	136.7	137.8	227.1	237.4	246.2	63.12	65.19	67.05
Finance, insurance and real estate.....	153.2	156.7	163.1	247.4	259.9	282.0	68.82	70.83	73.92
Service.....	139.3	143.2	148.9	236.1	253.3	274.2	50.27	53.08	55.38
Industrial Composite.....	119.7	118.7	118.1	205.7	210.9	216.5	73.47	75.83	78.11
Province									
Newfoundland.....	125.8	129.7	131.7	212.2	233.7	249.8	63.68	67.91	71.41
Prince Edward Island.....	126.3	128.5	130.7	209.5	216.3	231.5	54.75	55.00	57.03
Nova Scotia.....	96.3	95.5	94.0	154.6	160.0	161.4	60.17	62.65	63.98
New Brunswick.....	101.7	103.4	103.9	162.4	171.9	175.0	60.39	62.66	63.55
Quebec.....	118.5	118.6	118.3	203.6	211.6	218.1	70.56	73.00	75.33
Ontario.....	121.3	119.2	118.7	209.3	212.2	218.3	76.39	78.71	81.14
Manitoba.....	112.2	111.0	110.0	186.1	188.6	192.1	70.16	71.71	73.45
Saskatchewan.....	130.0	126.0	123.1	218.6	218.2	219.4	70.13	72.13	74.19
Alberta (including Northwest Territories).....	155.0	153.3	154.2	263.9	268.9	280.5	75.63	77.83	80.45
British Columbia (including Yukon Territory).....	115.1	114.7	112.3	202.1	209.3	211.0	80.09	82.97	85.20
Urban Area									
St. John's, Nfld.....	135.5	131.4	134.0	221.8	226.7	241.7	52.78	55.31	57.71
Sydney, N.S.....	87.2	88.2	78.6	135.6	142.7	128.0	73.03	75.62	75.70
Halifax, N.S.....	117.0	117.8	122.6	194.7	203.6	221.6	59.73	62.03	64.78
Moncton, N.B.....	99.8	99.1	104.7	158.4	162.1	175.1	57.55	59.31	60.56
Saint John, N.B.....	101.5	106.6	108.2	160.9	184.5	190.7	56.87	61.58	62.62
Chicoutimi-Jonquière, Que.....	110.1	115.8	108.8	193.2	214.8	211.5	87.51	92.28	96.72
Quebec, Que.....	110.4	110.4	113.3	192.2	200.0	213.3	61.62	63.77	66.47
Sherbrooke, Que.....	100.3	100.5	104.1	163.4	173.9	186.0	59.08	62.66	64.69
Shawinigan, Que.....	100.0	105.8	103.6	173.0	191.0	192.7	80.12	83.10	85.47
Trois Rivières, Que.....	116.5	112.0	110.5	192.2	191.8	196.9	67.66	70.10	72.77
Drummondville, Que.....	77.3	76.1	77.9	121.0	123.6	130.2	60.26	61.10	62.92
Montreal, Que.....	123.3	123.1	123.3	212.3	219.7	227.6	72.02	74.61	77.05
Ottawa, Ont.-Hull, Que.....	124.9	124.2	127.9	215.0	222.2	237.2	67.87	70.46	72.85
Kingston, Ont.....	110.4	112.2	117.9	194.9	209.0	227.9	70.29	73.99	76.62
Peterborough, Ont.....	101.2	95.4	89.9	187.0	179.9	174.2	82.21	83.93	86.10
Oshawa, Ont.....	171.0	170.8	163.6	290.4	304.1	300.6	85.06	89.02	91.74
Toronto, Ont.....	131.3	129.9	131.8	227.1	231.8	243.2	76.57	78.98	81.59
Hamilton, Ont.....	112.0	111.3	108.1	197.1	201.5	202.5	81.75	84.00	86.84
St. Catharines, Ont.....	111.3	108.9	108.3	189.8	190.8	196.4	83.31	85.57	88.46
Niagara Falls, Ont.....	101.2	99.9	97.9	172.3	175.0	177.6	76.72	78.70	81.33
Brantford, Ont.....	90.7	81.2	81.6	144.9	132.6	137.6	69.93	71.39	73.80
Guelph, Ont.....	126.1	121.4	120.1	214.2	211.2	216.1	68.28	70.18	72.43
Galt, Ont.....	112.9	115.7	106.7	191.7	203.2	192.7	66.22	68.50	70.35
Kitchener, Ont.....	121.4	121.4	121.8	208.0	214.4	221.6	69.66	71.74	73.85
Sudbury, Ont.....	138.1	146.0	147.4	228.3	250.0	258.1	87.20	90.17	92.32
Timmins, Ont.....	94.1	93.7	91.3	132.1	137.0	138.2	66.32	68.84	71.15
London, Ont.....	123.8	123.9	129.5	212.8	220.9	238.8	69.56	72.07	74.38
Sarnia, Ont.....	119.5	124.7	126.5	233.3	254.4	266.7	93.99	98.05	101.28
Windsor, Ont.....	79.3	76.2	72.8	131.3	128.8	126.8	83.30	84.98	87.29
Sault Ste. Marie, Ont.....	146.8	143.5	139.2	299.1	270.0	275.1	92.78	95.28	99.65
Fort William-Port Arthur, Ont.....	111.8	108.0	107.3	186.1	189.2	192.9	74.35	78.07	80.13
Winnipeg, Man.....	111.3	111.4	110.3	188.6	193.4	197.1	67.07	68.63	70.42
Regina, Sask.....	132.7	131.3	135.2	231.8	238.4	254.4	66.39	69.63	72.80
Saskatoon, Sask.....	136.3	138.3	138.7	240.1	249.3	257.3	66.35	67.71	69.67
Edmonton, Alta.....	186.6	184.8	189.0	324.0	328.7	347.3	70.84	72.32	74.79
Calgary, Alta.....	169.5	170.7	172.3	284.7	298.7	313.9	70.90	73.61	76.58
Vancouver, B.C.....	116.0	113.8	111.3	209.2	212.0	214.0	78.89	87.42	83.82
Victoria, B.C.....	113.4	110.7	109.0	195.7	199.3	202.5	71.76	74.69	77.00

¹ The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

11.—Annual Average Weekly Wages and Salaries, by Industrial Division 1939-61, and Monthly Averages 1961

Year and Month	Forestry (chiefly log- ging)	Mining	Manu- factur- ing	Con- struc- tion	Trans- porta- tion, Storage and Com- muni- cation	Public Utility Oper- ation	Trade	Finance, Insur- ance and Real Estate	Service ¹	Indus- trial Com- posite
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Averages—										
1939.....	17.37	28.69	22.79	18.83	28.68	29.53	21.83	29.59	16.33	23.44
1940.....	17.30	30.24	24.48	22.71	29.72	30.20	22.53	29.70	16.74	24.94
1941.....	19.18	32.64	26.73	23.78	30.34	31.88	22.81	30.00	17.43	26.65
1942.....	20.70	34.81	28.99	27.29	31.70	34.16	24.07	31.46	18.21	28.62
1943.....	24.78	36.09	31.39	30.83	33.15	35.70	25.24	32.48	19.42	30.79
1944.....	26.54	38.05	32.49	30.63	34.62	37.01	26.21	33.61	20.25	31.85
1945.....	26.90	38.61	32.46	30.66	36.05	36.91	26.85	34.77	20.71	32.04
1946.....	29.03	39.21	32.27	31.62	37.53	38.17	28.45	36.11	21.90	32.48
1947.....	35.42	43.03	36.34	34.85	41.23	41.05	31.29	38.34	23.48	36.19
1948.....	39.11	48.77	40.67	37.99	45.51	45.16	34.38	40.03	25.87	40.06
1949.....	40.62	51.49	43.97	41.28	48.39	48.14	36.97	42.22	28.05	42.96
1950.....	42.44	54.27	46.49	43.42	49.34	51.44	39.02	44.09	29.64	45.03
1951.....	49.13	60.33	51.63	48.79	54.14	56.43	43.08	46.48	31.81	50.04
1952.....	55.84	65.79	56.36	55.82	56.81	62.00	46.08	49.35	34.23	54.41
1953.....	58.26	68.91	59.29	60.88	61.24	65.45	48.51	51.86	37.12	57.53
1954.....	59.89	70.67	61.15	61.15	62.76	67.87	50.73	53.93	38.91	59.01
1955.....	60.62	73.53	63.48	62.11	64.56	70.80	52.42	56.79	40.71	61.05
1956.....	65.40	78.01	66.71	68.58	67.29	74.39	54.64	60.29	42.93	64.44
1957.....	69.38	83.89	69.94	73.63	71.20	78.99	57.51	63.36	45.77	67.93
1958.....	71.74	86.60	72.67	74.54	74.72	83.85	60.20	66.40	48.23	70.43
1959.....	71.63	90.76	75.84	76.55	79.65	88.08	63.12	68.82	50.27	73.47
1960.....	74.85	93.80	78.19	80.46	82.32	91.52	65.19	70.83	53.08	75.83
1961.....	77.05	95.90	80.73	82.57	85.87	94.52	67.05	73.92	55.38	78.11
1961—										
January.....	74.25	96.27	79.65	81.96	82.71	94.59	66.55	72.29	54.81	76.99
February.....	78.87	96.30	80.24	83.96	84.06	96.15	66.87	72.39	55.10	77.80
March.....	79.24	95.88	80.36	82.03	84.25	95.27	66.44	73.86	55.04	77.64
April.....	87.60	95.16	80.95	82.72	84.02	94.95	67.15	74.09	55.91	78.12
May.....	73.68	95.82	80.72	81.27	85.60	94.20	67.34	74.22	55.29	78.00
June.....	74.52	95.49	81.16	83.26	86.58	93.67	67.69	74.59	55.23	78.55
July.....	73.26	94.28	80.34	84.02	87.03	93.22	67.57	74.14	54.96	78.24
August.....	72.95	95.00	80.42	84.57	86.83	93.22	67.48	74.15	54.84	78.27
September.....	75.23	96.32	81.15	84.75	87.70	94.72	67.19	74.18	55.23	78.75
October.....	79.26	97.35	81.78	84.48	87.25	94.58	67.05	74.30	55.89	79.02
November.....	79.85	97.75	81.87	83.08	87.46	94.62	66.58	74.49	56.08	78.82
December.....	75.90	95.15	80.16	74.75	86.97	95.10	66.72	74.50	56.11	77.03

¹ Mainly hotels, restaurants, laundries, dry-cleaning establishments and business and recreational services.

Subsection 2.—Hours and Earnings of Wage-Earners

Since the end of 1944, the monthly survey of employment and payrolls has also obtained, for wage-earners, statistics of hours of work and paid absence with corresponding totals of gross wages paid to the wage-earners for whom records of hours are maintained. These are mainly hourly rated or production workers; the necessary information on hours frequently is not kept by employers for ancillary workers nor, in many industries and establishments, for any wage-earners. Salaried employees are excluded by definition from this series. As a result of these exclusions, data are available for fewer industries and workers than are covered in the employment and average weekly wage and salary statistics.

The questionnaire used in the monthly survey calls for entry of the gross wage payments in the reported pay periods, before deductions for income tax, unemployment insurance, etc. They include such items as payments for premium overtime work, shift differentials, production, incentive and cost-of-living bonuses, as well as straight-time wages, including the earnings of wage-earners employed for only part of the pay periods covered by the monthly surveys.

In the 17 years of the record, average hours have fallen in nearly all industries and areas for which data are available, reflecting wide-spread reductions in the standard work week and in the overtime work that was prevalent in many industries during the Second World War. The effect of the latter, however, was partly offset by the employment of a considerable amount of part-time labour. The smallest decline in hours since 1945 (less than 1 p.c.) has taken place in building and structures. This group had been severely affected by wartime shortages of labour and materials and during the war years curtailed operations generally and reduced working hours. The 17-year decrease in manufacturing hours of work approximated 8 p.c.

During the postwar years there have been widely distributed and substantial advances in average hourly and weekly wages. Although these have been attributable in the main to wage-rate revisions, other factors have contributed. Important among these, especially in the earlier part of the period, were progressive increases in cost-of-living allowances, now largely though not entirely absorbed in wage rates. Technological changes, frequently involving the employment of more highly skilled workers at the expense of lower-paid jobs, have also tended to raise wage levels, as has relatively greater expansion over the years in the industries in which pay rates usually exceed the general level. A comparatively high degree of uniformity has been shown in the percentage increases recorded since 1945 by components of the broader groups, also noted in the average weekly wage and salary figures.

12.—Annual Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries, 1945-61 and Monthly Averages 1961

Year and Month	All Manufactures			Mining			Building and Structures		
	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages
	No.	\$	\$	No.	\$	\$	No.	\$	\$
Averages—									
1945.....	44.1	0.69	30.47	43.9	0.85	38.40	40.2	0.81	32.60
1946.....	42.7	0.71	30.15	42.7	0.88	37.53	38.7	0.84	32.39
1947.....	42.5	0.81	34.47	42.3	0.99	41.83	39.3	0.92	36.12
1948.....	42.3	0.92	38.96	42.8	1.12	48.02	40.0	1.02	40.68
1949.....	42.2	0.99	41.74	42.7	1.18	50.22	40.0	1.08	43.28
1950.....	42.3	1.04	44.03	43.0	1.22	52.46	39.5	1.14	45.07
1951.....	41.7	1.18	49.29	43.1	1.35	58.06	39.4	1.29	50.67
1952.....	41.5	1.30	53.83	42.7	1.48	63.20	41.0	1.44	59.04
1953.....	41.3	1.36	56.25	42.6	1.54	65.69	40.7	1.58	64.31
1954.....	40.7	1.41	57.43	42.6	1.58	67.14	39.9	1.61	64.08
1955.....	41.0	1.45	59.45	43.2	1.61	69.68	39.5	1.63	64.46
1956.....	41.0	1.52	62.40	42.8	1.73	73.92	41.0	1.77	72.73
1957.....	40.4	1.61	64.96	42.3	1.88	79.35	41.3	1.90	78.47
1958.....	40.2	1.66	66.77	41.5	1.96	81.30	40.5	1.94	78.37
1959.....	40.7	1.72	70.16	41.5	2.04	84.80	39.6	2.01	79.59
1960.....	40.4	1.78	71.96	41.7	2.09	87.26	40.1	2.12	84.85
1961.....	40.6	1.83	74.27	41.8	2.13	89.08	39.9	2.17	86.39
1961—									
January.....	40.1	1.81	72.76	42.1	2.12	88.97	38.8	2.19	84.93
February.....	40.4	1.82	73.40	42.1	2.13	89.46	39.8	2.20	87.61
March.....	40.3	1.83	73.64	41.6	2.14	89.18	38.6	2.21	85.30
April.....	40.6	1.84	74.56	41.4	2.13	88.04	39.4	2.20	86.81
May.....	40.5	1.84	74.44	42.1	2.12	89.08	39.3	2.14	84.11
June.....	41.0	1.83	75.02	42.2	2.12	89.39	41.1	2.13	87.31
July.....	40.6	1.82	73.95	41.4	2.11	87.55	41.9	2.14	89.49
August.....	40.9	1.82	74.26	42.1	2.10	88.66	42.1	2.15	90.55
September.....	41.3	1.81	75.00	41.9	2.13	89.44	42.2	2.14	90.48
October.....	41.2	1.84	75.69	42.7	2.13	90.90	41.8	2.15	89.95
November.....	41.1	1.84	75.64	42.6	2.14	90.97	40.7	2.17	88.30
December.....	38.8	1.88	72.85	39.9	2.19	87.32	32.9	2.19	71.89

13.—Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries and Areas, 1959-61

Industry, Province and Urban Area	Average Weekly Hours Worked			Average Hourly Earnings			Average Weekly Wages		
	1959	1960	1961	1959	1960	1961	1959	1960	1961
	No.	No.	No.	\$	\$	\$	\$	\$	\$
Industry									
Mining	41.5	41.7	41.8	2.04	2.09	2.13	84.80	87.26	89.08
Metal mining.....	41.7	41.9	42.2	2.13	2.17	2.20	88.73	90.89	92.83
Coal mining.....	38.6	39.7	39.7	1.74	1.75	1.77	67.00	69.36	70.36
Manufacturing	40.7	40.4	40.6	1.72	1.78	1.83	70.16	71.96	74.27
Durable goods ¹	41.0	40.7	40.9	1.87	1.94	1.99	76.66	78.70	81.36
Non-durable goods ¹	40.4	40.1	40.3	1.58	1.64	1.69	63.90	65.68	67.87
Construction	40.2	40.4	40.3	1.84	1.91	1.98	74.20	78.41	79.93
Buildings and structures.....	39.6	40.1	39.9	2.01	2.12	2.17	79.59	84.85	86.39
Highways, bridges and streets.....	41.2	41.0	40.9	1.56	1.63	1.67	64.28	66.89	68.37
Service	39.4	39.1	38.7	1.00	1.04	1.07	39.29	40.58	41.27
Hotels and restaurants.....	39.4	39.1	38.7	0.98	1.01	1.04	38.52	39.63	40.09
Laundries and dry-cleaning plants.....	40.1	39.8	39.7	0.97	1.00	1.03	38.98	39.83	40.96
Province									
Newfoundland.....	39.7	40.3	40.1	1.59	1.64	1.71	63.00	65.94	68.39
Nova Scotia.....	40.9	40.8	40.4	1.52	1.57	1.60	62.40	64.13	64.48
New Brunswick.....	41.6	41.4	40.8	1.50	1.55	1.58	62.33	64.21	64.56
Ontario.....	41.5	41.2	41.5	1.54	1.60	1.65	63.97	66.10	68.25
Quebec.....	40.6	40.3	40.5	1.82	1.87	1.93	73.79	75.52	78.09
Manitoba.....	40.4	39.9	39.8	1.65	1.67	1.72	66.52	68.67	68.43
Saskatchewan.....	39.6	38.9	38.9	1.86	1.90	1.97	73.68	74.02	76.67
Alberta.....	39.9	39.5	39.7	1.83	1.89	1.96	72.90	74.76	77.90
British Columbia.....	37.9	37.6	37.7	2.09	2.17	2.23	79.39	81.69	84.17
Urban Area									
Montreal.....	40.7	40.3	40.7	1.60	1.65	1.70	65.06	66.78	69.04
Toronto.....	40.5	40.1	40.4	1.75	1.80	1.85	70.74	72.06	74.67
Hamilton.....	40.6	40.1	40.3	2.06	2.14	2.22	83.66	85.70	89.41
Windsor.....	39.8	39.7	40.0	2.09	2.14	2.21	83.15	84.83	88.38
Winnipeg.....	40.5	40.0	39.8	1.63	1.66	1.72	65.93	66.51	68.36
Vancouver.....	37.9	37.2	37.4	2.04	2.12	2.17	77.36	78.93	81.30

¹ The durable goods group includes wood products, iron and steel products, transportation equipment, non-ferrous metal products, electrical apparatus and supplies, and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

Subsection 3. —Hours and Earnings in Manufacturing Industries*

Information obtained in an annual survey of earnings and hours in manufacturing relating to the last week of October supplements the monthly data dealt with in preceding Subsections. Separate figures of hours and earnings of men and women wage-earners and salaried employees are obtained in each survey and additional material is collected periodically. Distributions of wage-earners in a given range of hours were compiled each year from 1946 to 1949 and every third year thereafter to 1958 for which statistics were given in the 1960 Year Book, p. 777. Percentage distributions of wage-earners and salaried employees by amounts earned in the survey week were obtained triennially from 1950 to

* More detailed information is given in DBS annual report *Earnings and Hours of Work in Manufacturing* (Catalogue No. 72-204). Data for 1960 include milk bottling and pasteurizing plants in manufacturing for the first time.

1959. Hours and earnings of clerical and related workers, given in Table 16 for 1960, were segregated from those for managerial, professional, supervisory and other salaried employees in 1951, 1954, 1957, 1959 and 1960.

The annual survey, like the monthly survey, is limited to establishments usually employing 15 or more persons and covers approximately 90 p.c. of all employees reported to the annual Census of Manufactures. Establishments are asked to report for all casual, part-time and full-time employees on their staffs in the survey week, excluding proprietors, firm members, pensioners, homeworkers, employees absent without pay throughout the week, and staffs in manufacturers' separately organized sales offices. Gross earnings for the week are required, including regularly paid bonuses, overtime pay and amounts paid for absences in the survey week. The reported hours comprise part-time, full-time and overtime hours worked and hours of paid absence. The general averages obtained are usually very similar to those derived from the corresponding monthly survey.

The annual survey reflects a continued upward movement in wages and salaries throughout the postwar period. Table 14 provides year-to-year comparisons of average earnings from 1949. In the 12 years from 1949, men's weekly wages rose by 69.7 p.c. and their salaries by 78.1 p.c. In the same period, women's weekly wages advanced by 61.7 p.c. and their salaries by 77.7 p.c. Because the general trend in working hours has been downward as a result of reductions in the standard work week and other factors, the increases in average hourly earnings of wage-earners have been proportionately greater than in weekly wages, the gains in 1960 over 1949 amounting to 80.4 p.c. for men and 67.6 p.c. for women.

Variations in the magnitude of the changes shown in the general and group averages and in the year-to-year comparisons are obviously related to varying economic and other conditions affecting the component industries in the survey periods, as well as to the industrial and, in some cases, the area distributions of the reported employees. Tables 15 and 16 show the 1960 averages of hours and earnings for wage-earners and salaried employees, respectively, for the provinces, the six largest metropolitan areas, the major industry groups and several important industries. It will be noted that women earn consistently lower average wages or salaries than men in the same area or industry unit. This results not only from pay differentials and occupational differences, but also from such factors as a frequently shorter work week for women, a greater incidence of part-time work and absenteeism among them, their higher proportions of younger and less experienced workers, and their industrial distributions.

Salaried employees comprise increasing proportions of manufacturing staffs as a whole. Table 17 shows that the number of such workers has risen from 18.5 p.c. of the total reported in 1950 to 24.4 p.c. in 1960. This trend is associated with developments in planning, administration and record-keeping which have increased requirements for professional and clerical personnel, and with changes in manufacturing processes which have frequently reduced employment for production workers per unit produced. Changes in industrial distributions of the employees reported also contribute to variations in the ratio of salaried personnel to wage-earners, which in any one period may be further influenced by seasonal, market and other conditions affecting levels of production. These usually cause sharper fluctuations in numbers of wage-earners than of salaried employees.

14.—Average Earnings of Male and Female Workers and Increases over the Preceding Year, Weeks Ended Oct. 31, 1949-60

(As reported by manufacturers usually employing 15 or more persons.)

Year	Men			Women			Both Sexes		
	Average Earnings	Increase over Preceding Year		Average Earnings	Increase over Preceding Year		Average Earnings	Increase over Preceding Year	

AVERAGE HOURLY EARNINGS OF WAGE-EARNERS									
	\$	\$	p.c.	\$	\$	p.c.	\$	\$	p.c.
1949.....	1.07	0.05	4.9	0.68	0.03	4.6	0.98	0.03	3.2
1950.....	1.14	0.07	6.5	0.72	0.04	5.9	1.06	0.08	8.2
1951.....	1.31	0.17	14.9	0.82	0.10	13.9	1.22	0.16	15.1
1952.....	1.40	0.09	6.9	0.86	0.04	4.9	1.30	0.08	6.6
1953.....	1.47	0.07	5.0	0.91	0.05	5.8	1.36	0.06	4.6
1954.....	1.51	0.04	2.7	0.93	0.02	2.2	1.40	0.04	2.9
1955.....	1.57	0.06	4.0	0.95	0.02	2.2	1.44	0.04	2.9
1956.....	1.66	0.09	5.7	1.00	0.05	5.3	1.53	0.09	6.2
1957.....	1.75	0.09	5.4	1.05	0.05	5.0	1.61	0.08	5.2
1958.....	1.80	0.05	2.9	1.08	0.03	2.9	1.65	0.04	2.5
1959.....	1.88	0.08	4.4	1.11	0.03	2.8	1.72	0.07	4.2
1960.....	1.93	0.05	2.7	1.14	0.03	2.7	1.77	0.05	2.9

AVERAGE WEEKLY WAGES									
	\$	\$	p.c.	\$	\$	p.c.	\$	\$	p.c.
1949.....	47.33	1.60	3.5	27.18	1.27	4.9	42.61	1.36	3.3
1950.....	50.93	3.60	7.6	29.00	1.82	6.7	45.94	3.33	7.8
1951.....	56.46	5.53	10.9	31.27	2.27	7.8	51.32	5.38	11.7
1952.....	60.85	4.39	7.8	34.17	2.90	9.3	55.17	3.85	7.5
1953.....	62.71	1.86	3.1	35.07	0.90	2.6	56.75	1.58	2.9
1954.....	63.98	1.27	2.0	35.90	0.83	2.4	57.99	1.24	2.2
1955.....	65.86	2.88	4.5	37.52	1.62	4.5	60.53	2.54	4.4
1956.....	70.67	3.81	5.7	39.29	1.77	4.7	63.97	3.44	5.7
1957.....	76.21	1.54	2.2	39.49	0.20	0.5	65.31	1.34	2.1
1958.....	75.03	2.82	3.9	41.90	2.41	6.1	67.85	2.54	3.9
1959.....	79.20	4.17	5.6	43.36	1.46	3.5	71.35	3.50	5.2
1960.....	80.34	1.14	1.4	43.96	0.60	1.4	72.39	1.04	1.5

AVERAGE WEEKLY SALARIES									
	\$	\$	p.c.	\$	\$	p.c.	\$	\$	p.c.
1949.....	65.37	1.90	3.0	32.62	1.36	4.4	54.85	1.94	3.7
1950.....	69.35	3.98	6.1	34.38	1.76	5.4	58.74	3.89	7.1
1951.....	77.55	8.20	11.8	38.42	4.04	11.8	65.98	7.24	12.3
1952.....	82.60	5.05	6.5	41.26	2.84	7.4	70.75	4.77	7.2
1953.....	86.43	3.83	4.6	43.13	1.87	4.5	73.87	3.12	4.4
1954.....	90.99	4.56	5.3	45.00	1.87	4.3	77.81	3.94	5.3
1955.....	93.50	2.51	2.8	47.02	2.02	4.5	80.57	2.76	3.5
1956.....	99.05	5.55	5.9	49.31	2.29	4.9	85.23	4.66	5.8
1957.....	104.63	5.58	5.6	51.84	2.53	5.1	89.92	4.69	5.5
1958.....	108.34	3.71	3.5	54.07	2.23	4.3	93.74	3.82	4.2
1959.....	112.78	4.44	4.1	55.73	1.66	3.1	97.10	3.36	3.6
1960.....	116.41	3.63	3.2	57.98	2.25	4.0	100.47	3.37	3.5

15.—Average Hours and Earnings of Male and Female Wage-Earners for the Last Week of October, by Province, Metropolitan Area and Industry, 1960

Province, Metropolitan Area and Industry	Average Hours Worked			Average Hourly Earnings			Average Weekly Earnings		
	Men	Women	Both Sexes	Men	Women	Both Sexes	Men	Women	Both Sexes
Province	No.	No.	No.	\$	\$	\$	\$	\$	\$
Newfoundland.....	39.9	31.1	38.9	1.77	0.66	1.67	70.80	20.52	65.06
Nova Scotia.....	41.2	37.8	40.7	1.66	0.77	1.53	68.26	29.23	62.24
New Brunswick.....	42.9	35.2	41.6	1.58	0.83	1.48	67.60	29.07	61.48
Quebec.....	43.0	38.8	41.8	1.77	1.08	1.59	75.93	41.85	66.47
Ontario.....	41.5	38.6	40.9	2.02	1.21	1.86	83.79	46.80	76.13
Manitoba.....	41.0	38.8	40.5	1.85	1.05	1.67	75.90	40.82	67.45
Saskatchewan.....	40.6	38.2	40.3	1.90	1.25	1.81	77.00	47.60	73.02
Alberta.....	40.3	37.4	39.9	1.97	1.33	1.90	79.56	49.65	75.76
British Columbia.....	39.0	35.7	38.6	2.25	1.42	2.17	87.75	50.71	83.80
Canada.....	41.7	38.5	41.0	1.93	1.14	1.77	80.34	43.96	72.39
Metropolitan Area									
Montreal.....	42.3	38.4	41.0	1.86	1.15	1.65	78.61	44.27	67.61
Toronto.....	41.4	39.0	40.7	2.00	1.20	1.79	82.87	46.92	72.85
Hamilton.....	40.6	38.3	40.3	2.28	1.27	2.13	92.52	48.74	86.00
Windsor.....	39.9	39.8	39.9	2.19	1.53	2.13	87.59	60.94	84.81
Winnipeg.....	41.1	38.9	40.6	1.85	1.07	1.66	75.96	41.83	67.50
Vancouver.....	38.8	36.6	38.5	2.24	1.46	2.12	86.99	53.50	81.74
Industry									
Foods and beverages.....	42.5	36.9	41.0	1.71	1.11	1.57	72.50	40.88	64.30
Meat products.....	41.2	37.1	40.2	1.93	1.36	1.80	79.57	50.30	72.44
Canned and preserved fruits and vegetables.....	44.4	35.4	40.0	1.40	0.94	1.20	62.07	33.38	47.88
Bread and other bakery products.....	43.6	39.6	42.8	1.64	0.98	1.52	71.46	38.92	64.90
Tobacco and tobacco products.....	41.7	38.8	40.0	2.04	1.64	1.82	85.01	63.81	72.69
Rubber products.....	41.8	39.3	41.3	1.95	1.27	1.81	81.71	49.91	74.78
Leather products.....	40.1	38.5	39.4	1.43	0.97	1.22	57.40	37.34	48.08
Textile products (except clothing).....	43.5	40.2	42.4	1.45	1.11	1.34	63.08	46.20	56.91
Cotton yarn and broad woven goods.....	40.6	38.8	40.1	1.42	1.23	1.36	57.66	47.87	54.57
Clothing (textile and fur).....	41.1	38.3	39.0	1.58	1.02	1.17	64.99	39.21	45.69
Men's clothing.....	39.6	37.9	38.4	1.56	1.01	1.17	61.77	38.40	44.82
Women's clothing.....	39.2	36.7	37.1	1.90	1.10	1.25	74.41	40.34	46.42
Knit goods.....	45.5	41.0	42.3	1.37	0.98	1.10	62.35	40.09	46.42
Wood products.....	42.5	39.4	42.3	1.60	1.19	1.57	67.78	47.05	66.54
Saw and planing mills.....	41.7	38.9	41.6	1.68	1.33	1.67	70.17	51.82	69.51
Furniture.....	44.0	40.3	43.7	1.48	1.19	1.46	65.15	47.94	63.73
Paper products.....	42.1	38.9	41.8	2.20	1.20	2.10	92.58	46.64	87.74
Pulp and paper mills.....	41.9	37.0	41.8	2.29	1.41	2.28	96.10	52.12	95.23
Other paper products.....	42.9	39.2	41.7	1.84	1.17	1.63	79.14	45.79	68.16
Printing, publishing and allied industries.....	39.8	37.2	39.3	2.34	1.20	2.11	93.02	44.55	83.07
Iron and steel products.....	41.1	38.8	41.0	2.11	1.47	2.09	86.97	57.07	85.62
Iron castings.....	41.3	37.6	41.3	1.97	1.46	1.97	81.59	54.98	81.14
Machinery manufacturing.....	41.6	39.3	41.5	1.99	1.54	1.96	82.69	60.58	81.33
Primary iron and steel.....	40.1	32.9	40.0	2.50	2.01	2.50	100.27	66.17	100.02
Transportation equipment.....	40.6	38.0	40.5	2.07	1.55	2.05	83.94	58.73	82.98
Aircraft and parts.....	42.0	37.0	41.9	2.10	1.56	2.09	88.15	57.77	87.43
Motor vehicles.....	41.0	38.3	40.9	2.24	1.88	2.24	91.82	72.11	91.51
Motor vehicle parts and accessories.....	40.0	37.7	39.6	2.08	1.67	2.00	83.02	59.35	79.36
Railway and rolling-stock equipment.....	39.1	--	39.1	1.93	--	1.93	75.62	--	75.59
Shipbuilding and repairing.....	40.0	41.4	40.0	1.97	0.99	1.96	78.70	41.07	78.20
Non-ferrous metal products.....	41.0	39.3	40.9	2.14	1.10	2.08	87.76	43.20	84.91
Smelting and refining.....	40.2	--	40.2	2.31	--	2.31	92.92	--	92.83
Electrical apparatus and supplies.....	41.3	39.4	40.7	2.01	1.45	1.84	82.84	57.02	74.87
Non-metallic mineral products.....	43.2	39.4	42.9	1.84	1.42	1.82	79.70	55.81	78.08
Products of petroleum and coal.....	40.6	--	40.6	2.54	--	2.54	103.16	--	102.87
Chemical products.....	41.0	38.3	40.6	2.10	1.25	1.97	80.14	47.81	80.10
Miscellaneous manufacturing industries.....	43.6	40.8	42.5	1.65	1.06	1.44	72.02	43.37	61.36
Averages, Durable Goods.....	41.4	39.1	41.2	1.97	1.39	1.93	81.78	54.56	79.60
Averages, Non-durable Goods.....	41.9	38.3	40.7	1.88	1.09	1.63	78.72	41.87	66.51
Averages, All Manufacturing Industries.....	41.7	38.5	41.0	1.93	1.14	1.77	80.34	43.96	72.39

16.—Average Hours and Earnings of Male and Female Salaried Employees for the Last Week of October, by Province, Metropolitan Area and Industry, 1960

Province, Metropolitan Area and Industry	Salaried Employees						Clerical and Related Workers		
	Average Hours Worked			Average Weekly Earnings			Average Weekly Earnings		
	Men	Women	Both Sexes	Men	Women	Both Sexes	Men	Women	Both Sexes
Province	No.	No.	No.	\$	\$	\$	\$	\$	\$
Newfoundland.....	41.7	39.5	41.3	101.70	46.58	90.98	77.21	46.44	66.09
Nova Scotia.....	39.3	37.3	38.8	97.69	45.29	83.63	72.23	44.49	59.09
New Brunswick.....	40.1	38.1	39.6	102.66	46.65	87.20	74.80	46.51	61.15
Quebec.....	38.7	37.5	38.4	114.21	57.62	99.17	84.83	56.09	71.98
Ontario.....	38.7	37.5	38.4	119.71	59.45	102.55	88.85	58.05	73.37
Manitoba.....	39.2	37.8	38.8	100.56	49.11	87.02	74.96	48.08	62.18
Saskatchewan.....	39.4	38.6	39.2	100.01	52.97	86.62	73.65	52.31	62.77
Alberta.....	39.3	38.2	39.0	110.23	55.10	97.05	83.61	54.01	70.07
British Columbia.....	39.0	37.3	38.7	122.59	59.25	107.78	91.63	57.81	75.44
Canada.....	38.8	37.6	38.5	116.41	57.98	100.47	86.41	56.59	72.10
Metropolitan Area	No.	No.	No.	\$	\$	\$	\$	\$	\$
Montreal.....	38.4	37.3	38.1	118.30	60.55	102.11	87.15	58.83	74.22
Toronto.....	37.9	37.0	37.7	121.66	61.83	102.60	86.66	59.74	72.29
Hamilton.....	38.9	38.0	38.7	126.83	60.34	108.68	97.91	59.84	80.83
Windsor.....	41.3	38.6	40.7	125.36	70.70	113.24	101.66	70.27	89.46
Winnipeg.....	39.1	37.7	38.7	100.71	49.64	87.62	74.93	48.46	62.43
Vancouver.....	38.6	37.5	38.3	121.39	60.03	105.24	89.93	58.30	74.39
Industry	No.	No.	No.	\$	\$	\$	\$	\$	\$
Foods and beverages.....	39.3	37.6	38.8	104.37	54.83	90.52	79.56	54.02	66.41
Meat products.....	39.4	38.5	39.2	106.95	59.09	97.20	81.21	58.03	72.25
Canned and preserved fruits and vegetables.....	39.5	38.3	39.1	105.04	55.37	90.21	78.55	54.18	64.93
Bread and other bakery products.....	41.0	37.5	39.8	92.84	49.94	78.42	77.03	49.62	61.16
Tobacco and tobacco products.....	37.5	37.4	37.5	124.19	67.06	103.39	79.85	63.26	70.46
Rubber products.....	38.7	38.0	38.5	110.53	55.80	95.70	83.44	55.33	69.90
Leather products.....	39.9	37.3	39.0	95.06	49.33	79.65	75.69	47.60	60.51
Textile products (except clothing)	39.0	37.5	38.8	105.00	51.99	89.14	73.04	51.20	60.58
Cotton yarn and broad woven goods.....	38.9	37.8	38.5	97.14	48.15	82.50	79.28	48.16	61.69
Clothing (textile and fur).....	39.6	38.0	39.1	99.86	50.66	80.42	71.57	50.95	58.43
Men's clothing.....	39.7	38.1	39.1	93.80	54.11	77.31	70.85	48.50	58.55
Women's clothing.....	39.6	37.6	38.6	103.28	61.44	82.79	74.61	56.94	62.46
Knit goods.....	40.5	38.1	39.4	99.76	49.96	77.76	69.33	47.07	53.65
Wood products.....	40.9	37.7	40.1	105.52	53.57	92.94	81.18	52.68	68.21
Saw and planing mills.....	41.8	38.5	41.1	106.30	54.15	96.06	83.81	53.55	71.91
Furniture.....	39.6	37.0	38.8	104.87	53.22	88.69	77.05	52.05	63.84
Paper products.....	37.4	36.5	37.2	135.84	62.46	117.92	91.57	61.66	78.07
Pulp and paper mills.....	37.4	36.5	37.2	146.62	65.89	129.15	96.08	65.20	83.17
Other paper products.....	37.3	36.6	37.1	113.41	57.78	96.96	82.80	56.82	69.85
Printing, publishing and allied industries.....	37.4	36.9	37.2	109.77	56.00	88.87	72.79	52.50	59.90
Iron and steel products.....	38.6	37.7	38.4	116.79	58.22	102.99	85.93	57.29	74.04
Iron castings.....	39.0	37.1	38.6	113.73	55.86	99.97	84.62	55.06	72.54
Machinery manufacturing.....	38.5	37.8	38.3	106.96	55.18	96.10	80.61	54.31	69.27
Primary iron and steel.....	38.4	37.6	38.2	136.82	65.19	122.39	91.97	64.44	79.90
Transportation equipment.....	39.9	38.6	39.6	121.58	64.23	109.45	96.56	63.87	85.30
Aircraft and parts.....	39.1	38.5	38.9	122.70	59.70	108.49	96.89	59.27	84.28
Motor vehicles.....	41.6	39.7	41.3	130.53	76.41	119.82	105.37	76.24	95.44
Motor vehicle parts and accessories.....	39.2	38.5	39.1	118.07	64.08	105.52	91.45	63.41	79.32
Railway and rolling-stock equipment.....	39.1	38.2	39.0	111.51	61.76	108.01	81.42	61.44	76.31
Shipbuilding and repairing.....	39.1	36.5	38.6	106.68	51.03	96.33	91.98	50.83	80.04
Non-ferrous metal products.....	38.1	37.2	37.9	124.77	59.07	110.09	93.10	57.97	77.24
Smelting and refining.....	38.3	38.2	38.3	127.75	64.93	120.28	99.74	62.62	87.23
Electrical apparatus and supplies.....	39.4	38.3	39.2	119.50	59.98	104.55	97.68	59.12	81.91
Non-metallic mineral products.....	39.2	37.4	38.8	110.78	57.45	99.33	80.08	56.27	69.88
Products of petroleum and coal.....	36.5	35.8	36.4	152.33	70.68	134.58	96.30	67.29	83.85
Chemical products.....	37.9	37.5	37.8	124.92	61.61	106.54	82.11	59.73	69.15
Miscellaneous manufacturing industries.....	38.8	37.4	38.3	112.49	56.31	94.00	80.19	55.14	65.54
Averages, Durable Goods.....	39.3	37.9	39.0	117.58	59.29	104.15	90.90	58.48	77.66
Averages, Non-durable Goods.....	38.4	37.3	38.1	115.27	57.12	97.23	80.75	55.27	66.71
Averages, All Manufacturing Industries.....	38.8	37.6	38.5	116.41	57.98	100.47	86.41	56.59	72.10

17.—Proportions of Reported Employees classified as Salaried Staff, 1949-60

Year	Durable Goods			Non-durable Goods			All Manufacturing		
	Men	Women	Both Sexes	Men	Women	Both Sexes	Men	Women	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1949.....	13.8	42.0	17.0	18.4	17.7	18.1	15.9	22.9	17.6
1950.....	14.4	40.8	17.5	19.9	18.2	19.3	16.9	23.4	18.5
1951.....	15.5	46.4	18.8	20.9	19.8	20.5	17.9	26.0	19.7
1952.....	16.4	46.1	19.6	22.1	19.2	21.1	18.9	25.6	20.4
1953.....	17.3	45.1	20.6	22.7	20.3	21.9	19.6	26.6	21.2
1954.....	19.2	47.6	22.6	24.2	21.1	22.2	20.6	27.8	22.2
1955.....	18.9	45.0	22.0	23.5	20.6	22.6	20.9	27.0	22.3
1956.....	19.4	47.5	22.8	24.1	20.9	23.0	21.4	27.8	22.9
1957.....	20.8	49.8	24.3	24.0	22.2	23.4	22.2	29.2	23.8
1958.....	21.9	48.6	25.0	24.7	22.2	23.9	23.2	28.7	24.4
1959.....	20.5	47.2	23.7	24.4	21.8	23.5	22.3	27.9	23.6
1960.....	22.0	49.2	25.2	24.3	22.6	23.8	23.1	28.7	24.4

Section 4.—Wage Rates, Hours of Labour and Other Working Conditions

Statistics on occupational wage rates by industry and region or city and on standard weekly hours of labour are compiled by the federal Department of Labour and published in the annual report *Wage Rates, Salaries and Hours of Labour*. The statistics published are based on an annual survey covering some 23,000 establishments in most industries and apply to the last normal pay period preceding Oct. 1.

Average wage rates of time workers and average straight-time earnings of piece workers and other incentive workers in a given occupation are shown separately but are combined in the calculation of index numbers. Predominant ranges of rates for each occupation used are also given. Overtime pay is excluded.

The industry index numbers measure changes in wage rates for non-office employees below the rank of foreman. They do not, however, provide a basis for comparing the level of wages in one industry with that in another. More detailed information on concepts and methods of developing these statistics is given in the annual report.

18.—Index Numbers of Average Wage Rates for Certain Main Industrial Groups, 1951-60
(1949=100)

NOTE.—Indexes back to 1901 may be obtained from the Department of Labour publication *Wage Rates, Salaries and Hours of Labour 1960*.

Year	Logging	Coal Mining	Metal Mining	Manufacturing			Con-struction	Rail-ways	Tele-phone	Per-sonal Service	General Average
				Durable Goods	Non-durable Goods	All Manu-factur-ing					
1951.....	109.6	111.1	121.6	121.7	118.8	120.3	118.6	121.9	115.7	110.6	119.1
1952.....	133.3	124.0	130.1	130.2	126.5	128.4	128.6	136.8	128.4	117.6	127.7
1953.....	135.5	124.0	132.3	135.3	132.8	134.6	136.2	137.2	136.6	123.3	133.6
1954.....	138.0	123.5	136.7	140.0	136.9	138.5	140.0	137.8	147.6	128.6	137.9
1955.....	138.2	122.8	140.3	143.7	140.7	142.2	145.4	137.8	152.8	132.3	141.7
1956.....	160.8	123.6	150.8	151.2	148.3	149.8	150.7	146.8	157.6	136.1	148.7
1957.....	168.4	137.4	156.2	160.7	156.3	158.6	160.7	153.3	165.9	138.9	156.5
1958.....	172.0	147.6	160.8	166.1	162.2	164.2	171.0	153.3	175.4	143.5	162.6
1959 ¹	176.5	147.8	165.5	172.1	167.7	169.9	180.7	165.7	..	144.9	169.5
1959 ²	176.2	147.3	164.3	170.8	167.0	168.9	180.7	165.7	..	146.1	168.9
1960.....	184.3	148.2	169.4	176.6	173.2	175.0	192.6	166.4	178.0	156.8	175.4

¹ 1958 survey coverage.² Expanded survey coverage.

19.—Index Numbers of Average Wage Rates, by Industry, 1956-60

(1949=100)

Industry	1956	1957	1958	1959 ¹	1959 ²	1960
Logging	160.8	163.1	172.0	176.5	176.2	184.3
Eastern Canada.....	163.0	169.5	173.6	177.0	177.0	185.2
British Columbia, coastal.....	151.2	163.6	165.2	174.5	172.9	180.6
Mining	142.4	150.4	156.7	160.0	159.0	162.8
Metal mining.....	150.8	156.2	160.8	165.5	164.3	169.4
Gold mining.....	141.4	143.4	145.4	149.9	149.9	152.8
Other metal mining.....	156.6	164.1	170.3	175.0	173.2	179.6
Coal mining.....	123.6	137.4	147.6	147.8	147.3	148.2
Manufacturing	149.8	153.6	161.2	169.9	163.9	175.0
Foods and beverages.....	147.9	156.7	164.8	170.8	170.5	176.4
Slaughtering and meat packing.....	151.2	161.4	169.7	178.8	176.5	181.6
Dairy products.....	143.7	151.4	160.0	163.2	161.1	167.3
Canned and cured fish.....	135.6	140.8	146.1	152.7	152.4	156.6
Flour mills.....	158.7	166.7	174.2	182.8	180.5	188.4
Biscuits.....	156.5	168.9	177.9	182.6	182.9	193.2
Bread and other bakery products.....	150.0	159.1	168.3	172.5	170.3	178.4
Breweries.....	168.6	181.3	188.1	198.1	198.1	207.8
Confectionery.....	153.7	164.2	174.7	183.6	182.0	197.3
Tobacco, cigars and cigarettes.....	164.8	174.6	184.4	193.3	193.3	198.0
Rubber products.....	145.0	150.4	153.2	160.2	159.7	164.3
Leather products.....	143.8	151.5	155.2	161.6	159.4	164.0
Boots and shoes.....	144.6	151.5	154.2	161.3	158.8	162.7
Leather tanneries.....	140.5	151.3	159.2	162.6	161.7	169.0
Textile products (except clothing).....	135.7	141.6	146.4	151.3	150.3	157.6
Cotton yarn and broad woven goods.....	138.6	143.0	145.8	151.0	150.3	160.2
Woolen and worsted woven goods and yarn.....	139.7	148.6	155.3	159.2	158.9	160.7
Synthetic and silk textiles.....	128.1	133.8	140.3	145.4	145.1	151.1
Clothing (textile and fur).....	136.4	144.0	149.1	153.4	152.5	156.2
Men's clothing.....	143.4	150.4	155.7	158.6	156.9	162.0
Men's and boys' suits and overcoats.....	143.4	148.3	153.1	155.8	155.2	161.3
Men's fine shirts.....	137.8	151.3	160.6	168.2	163.0	165.6
Work clothing and sportswear.....	147.6	154.7	158.5	158.3	156.6	161.2
Women's clothing.....	125.0	133.1	136.9	144.2	145.8	146.9
Women's and misses' coats and suits.....	126.7	135.6	138.8	148.7	150.8	149.5
Women's and misses' dresses.....	123.9	131.6	135.7	141.4	142.8	145.3
Hosiery and other knitted goods.....	141.8	149.4	154.1	158.0	156.0	159.8
Fur goods.....	129.8	138.8	148.7	149.1	146.6	153.0
Wood products.....	142.9	152.6	155.6	161.3	160.0	165.8
Sash and door, and planing mills.....	144.4	152.8	157.1	160.0	161.6	166.7
Sawmills.....	144.6	155.5	156.8	163.2	160.6	166.7
Wooden furniture.....	137.5	145.2	151.6	157.5	157.4	163.1
Paper products.....	162.7	171.6	175.4	179.1	178.7	187.2
Paper boxes and containers.....	149.3	158.3	167.3	171.0	169.4	177.5
Pulp and paper.....	165.2	174.1	177.0	180.7	180.5	189.0
Pulp.....	162.0	171.2	174.7	178.6	178.0	186.2
Newsprint.....	162.7	170.8	173.4	177.4	177.4	186.1
Paper other than newsprint.....	165.3	175.8	177.7	183.8	183.8	190.8
Printing, publishing and allied industries.....	152.5	159.5	166.3	174.2	173.7	181.3
Printing and publishing other than daily newspapers.....	146.7	153.7	161.5	168.7	167.9	175.8
Daily newspapers.....	162.5	169.5	174.6	183.5	183.5	190.7
Iron and steel products.....	156.4	165.2	170.9	176.6	176.0	182.9
Agricultural implements.....	143.5	152.0	162.1	161.1	162.4	173.4
Heating and cooking apparatus.....	161.4	170.1	172.2	175.4	174.0	176.5
Household, office, store and industrial machinery.....	153.5	161.4	170.1	177.6	175.8	180.3
Iron castings.....	153.9	161.8	167.2	173.8	173.5	178.7
Machine shop products.....	156.3	164.2	169.2	180.1	179.9	178.6
Primary iron and steel.....	165.3	176.0	172.8	185.6	185.6	197.4
Sheet metal products.....	157.9	166.2	172.2	174.5	173.9	181.0
Transportation equipment.....	149.9	158.8	165.1	172.8	171.9	176.3
Aircraft and parts.....	163.6	169.9	178.4	182.8	182.7	188.8
Auto repair and garages.....	155.6	164.9	171.8	177.1	175.4	178.4
Motor vehicles.....	142.7	152.6	156.6	164.1	163.9	170.6
Motor vehicle parts and accessories.....	167.4	166.2	170.6	179.1	176.1	180.4
Railway and rolling-stock equipment.....	140.2	148.7	155.6	168.3	167.8	170.1
Shipbuilding and repairing.....	148.0	157.1	164.1	171.7	171.7	180.0
Brass and copper products.....	153.7	166.0	175.3	179.1	177.6	184.4
Electrical apparatus and supplies.....	149.9	160.2	166.2	170.9	166.5	172.3
Heavy electrical machinery and equipment.....	148.0	158.5	166.3	168.3	166.2	172.3
Radio, television and other electronic equipment.....	145.3	150.0	159.6	162.5	156.8	167.8
Refrigerators, vacuum cleaners and miscellaneous electrical products.....	151.0	162.6	167.5	173.1	168.6	173.2

For footnotes, see end of table.

19.—Index Numbers of Average Wage Rates, by Industry, 1956-60—concluded

Industry	1956	1957	1958 ¹	1959 ¹	1959 ²	1960
Manufacturing—concluded						
Clay products.....	161.0	170.7	173.5	178.0	177.0	183.7
Petroleum refining and products.....	164.0	176.1	178.4	185.2	185.2	194.3
Chemical products.....	160.2	169.4	177.3	183.0	182.1	189.0
Acids, alkalies and salts.....	164.2	175.1	184.1	190.5	189.0	193.6
Medicinal, pharmaceutical and toilet preparations.....	155.5	164.2	172.1	176.4	175.3	183.6
Paints, varnishes and lacquers.....	162.6	170.9	177.7	184.4	184.4	191.6
Durable goods ³	151.2	160.7	166.1	172.1	170.8	176.6
Non-durable goods ³	148.3	156.3	162.2	167.7	167.0	173.2
Construction (buildings and structures only).....	150.7	160.7	171.0	180.7	180.7	192.6
Transportation, Storage and Communications.....	152.0	159.6	163.3	174.3	174.0	176.4
Transportation.....	151.0	158.4	160.9	173.2	172.8	175.5
Railways.....	146.3	153.3	153.3	165.7	165.7	166.4
Urban and suburban transportation systems.....	153.3	158.8	171.2	180.3	180.3	189.0
Truck transportation.....	158.3	169.8	173.4	186.4	184.9	190.8
Water transportation.....	164.7	166.7	174.5	187.4	187.4	190.7
Storage (terminal grain elevators only).....	154.7	163.1	174.3	183.2	183.2	190.4
Communications (telephone only).....	157.6	165.9	175.4	..	..	178.0
Electric Light and Power.....	169.7	179.2	192.5	200.6	200.6	210.6
Trade.....	146.2	153.5	160.1	168.4	167.4	172.9
Wholesale trade.....	157.5	165.8	173.5	180.4	176.7	181.3
Retail trade.....	141.8	148.7	154.9	163.8	163.8	169.6
Personal Service.....	136.1	138.9	143.5	144.9	146.1	156.8
Laundries.....	140.9	148.5	157.6	162.4	161.0	168.4
Restaurants.....	135.3	137.2	141.0	141.8	143.5	154.7
General Index, All Industries.....	148.7	156.5	162.6	169.5	168.9	175.5

¹ 1958 survey coverage.² Expanded survey coverage.³ These groups are composites of the manufacturing groups listed above. Durable goods include wood products, iron and steel products, transportation equipment, brass and copper products, electrical apparatus and supplies and clay products; non-durable goods include all other manufacturing industries.

20.—Average Wage and Salary Rates for Selected Occupations in Certain Cities Across Canada, Oct. 1, 1961

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sher- brooke, Que.	Montreal, Que.	Toronto, Ont.	Hamil- ton, Ont.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
Construction (building and structures only)—						
Bricklayer and mason.....	2.29	2.10	2.15	2.55	3.20	2.95
Carpenter.....	2.02	1.87	1.95	2.35	2.95	2.98
Electrician.....	2.35	2.00	1.90	2.55	3.60	3.45
Painter.....	1.76	1.77	1.85	2.25	2.71	2.45
Plasterer.....	2.37	2.10	2.15	2.65	3.20	3.05
Plumber.....	2.21	2.00	2.20	2.62	3.51	3.30
Sheet metal worker.....	1.91	1.60	2.20	2.35	3.42	2.85
Labourer.....	1.45	1.10	1.55	1.75	2.00	1.95
Truck driver.....	1.50	1.15	1.55	1.75	2.00	1.95
Manufacturing and Other Industries—¹						
General labourer, male.....	1.38	1.45	1.20	1.52	1.66	1.79
Maintenance Trades—						
Carpenter.....	1.89	1.96	1.63	2.10	2.23	2.36
Electrician.....	1.99	1.95	1.75	2.21	2.38	2.58
Machinist.....	1.91	1.92	1.72	2.22	2.31	2.67
Mechanic.....	1.86	1.81	1.77	2.10	2.26	2.51
Millwright.....	..	2.03	1.61	2.19	2.29	2.33
Pipefitter.....	1.99	1.97	1.66	2.29	2.36	2.47
Tool and die maker.....	2.18	..	1.87	2.35	2.35	2.49
Welder.....	1.89	1.98	1.65	2.10	2.15	2.48
Service Occupations—						
Truck driver, heavy truck.....	1.33	1.42	1.46	1.70	1.86	1.83
Truck driver, light truck.....	1.33	1.44	1.41	1.65	1.80	1.79

For footnote, see end of table, p. 730.

**20.—Average Wage and Salary Rates for Selected Occupations in Certain Cities
Across Canada, Oct. 1, 1961—concluded**

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sher- brooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.
Office Occupations, Male—						
Bookkeeper, senior.....	84.36	84.25	83.49	95.80	98.69	97.92
Clerk, intermediate.....	62.57	62.99	65.78	69.78	72.44	82.54
Clerk, senior.....	85.24	88.52	94.39	94.22	94.29	104.74
Order clerk.....	63.03	65.87	63.76	77.44	79.19	86.52
Draughtsman, intermediate.....	75.80	78.78	70.23	93.80	89.04	93.17
Draughtsman, senior.....	94.22	100.43	110.05	114.32	108.09	111.43
Office Occupations, Female—						
Clerk, intermediate.....	45.36	45.97	48.89	57.70	60.15	58.27
Machine Operator—						
Bookkeeping.....	45.71	48.41	42.41	52.93	55.74	51.09
Calculating.....	50.69	45.72	43.87	57.50	58.35	57.73
Payroll clerk.....	50.74	50.45	46.76	60.56	63.69	58.03
Secretary, senior.....	64.47	63.73	60.09	79.49	77.89	75.51
Stenographer, junior.....	46.60	46.73	45.59	53.50	56.40	55.20
Stenographer, senior.....	56.96	58.87	59.99	65.74	65.05	65.47
Switchboard operator.....	51.30	42.80	41.93	55.03	58.17	54.39
Typist, junior.....	44.23	40.35	39.06	47.05	49.78	48.30
Typist, senior.....	46.85	48.18	46.36	56.29	59.27	57.61
	Winnipeg, Man.	Regina, Sask.	Saskatoon, Sask.	Calgary, Alta.	Edmonton, Alta.	Vancouver, B.C.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
Construction (building and structures only)—						
Bricklayer and mason.....	2.70	2.56	2.58	2.90	2.90	2.99
Carpenter.....	2.50	2.25	2.25	2.65	2.90	2.92
Electrician.....	2.80	2.46	2.48	2.90	2.95	3.26
Painter.....	2.20	2.05	2.14	2.30	2.20	2.84
Plasterer.....	2.70	2.45	2.45	2.70	2.70	2.95
Plumber.....	2.80	2.55	2.55	2.75	2.80	3.14
Sheet metal worker.....	2.50	2.40	2.35	2.70	2.85	3.04
Labourer.....	1.65	1.56	1.63	1.90	1.90	2.19
Truck driver.....	1.75	1.60	1.64	1.90	1.90	2.41
Manufacturing and Other Industries—¹						
General labourer, male.....	1.60	1.61	1.59	1.69	1.59	1.94
Maintenance Trades—						
Carpenter.....	2.18	2.15	2.16	2.30	2.22	2.44
Electrician.....	2.28	2.41	2.36	2.54	2.50	2.62
Machinist.....	2.19	2.31	2.29	2.26	2.44	2.50
Mechanic.....	2.14	2.25	2.18	2.30	2.27	2.52
Millwright.....	2.14	2.28	2.10	2.21	2.32	2.48
Pipefitter.....	2.25	2.45	2.38	2.43	2.47	2.58
Tool and die maker.....	2.15	..	..	..	..	2.58
Welder.....	2.12	2.33	2.21	2.37	2.36	2.50
Service Occupations—						
Truck driver, heavy truck.....	1.71	1.69	1.57	1.92	1.70	2.25
Truck driver, light truck.....	1.50	1.57	1.56	1.70	1.75	2.16
Office Occupations, Male—	per wk.	per wk.	per wk.	per wk.	per wk.	per wk.
Bookkeeper, senior.....	83.92	88.07	92.48	98.18	90.72	98.96
Clerk, intermediate.....	64.62	69.02	63.76	79.05	74.64	76.25
Clerk, senior.....	82.08	93.41	84.44	101.72	96.09	99.35
Order clerk.....	65.44	71.41	64.88	75.66	72.76	82.32
Draughtsman, intermediate.....	84.42	78.45	74.05	85.75	83.14	95.26
Draughtsman, senior.....	107.19	92.70	88.35	104.58	103.86	113.38
Office Occupations, Female—						
Clerk, intermediate.....	51.17	57.55	55.43	56.64	55.74	62.77
Machine Operator—						
Bookkeeping.....	49.21	52.01	50.04	51.67	49.43	52.83
Calculating.....	52.67	55.93	52.00	55.56	54.51	60.96
Payroll clerk.....	54.91	64.58	60.29	67.19	59.16	64.82
Secretary, senior.....	71.21	75.19	68.86	78.14	68.28	76.09
Stenographer, junior.....	50.26	53.37	53.91	55.10	50.61	53.12
Stenographer, senior.....	59.08	61.86	60.91	64.57	60.59	62.46
Switchboard operator.....	47.75	51.73	48.34	53.72	50.50	54.97
Typist, junior.....	43.63	46.83	46.15	48.03	45.43	47.63
Typist, senior.....	51.34	59.67	52.07	57.29	56.02	58.00

¹ "Other Industries" consists of logging; mining; transportation (all sectors including air transportation); storage and communications (including radio and TV); public utilities; trade; finance; and government and personal service.

**21.—Average Standard or Normal Hours of Labour per Week for Employees in
Selected Industries, by Province, 1956-60**

Industry and Year	Atlantic Prov- inces ¹	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Work clothing.....1956	41.7	43.4	40.8	40.0	..	40.0	40.4
1957	42.0	42.4	41.0	40.0	..	40.0	40.0
1958	41.9	42.7	41.0	40.0	..	40.0	40.0
1959	42.0	41.9	40.5	40.0	..	40.0	40.0
1960	41.4	41.6	40.7	40.2	..	40.0	39.8
Pulp and paper.....1956	41.3	40.7	40.6	..	..	..	40.0
1957	41.1	40.3	40.5	..	..	..	40.0
1958	41.1	40.2	40.2	..	..	..	40.0
1959	41.0	40.2	40.2	..	..	..	40.0
1960	40.4	40.2	40.1	..	..	..	40.0
Wood products.....1956	50.1	50.0	45.4	44.2	44.0	44.8	40.3
1957	49.5	50.2	44.6	44.3	44.0	44.3	40.2
1958	49.4	49.6	44.6	43.8	44.0	44.1	40.2
1959	49.2	49.7	44.8	44.5	46.1	44.5	40.5
1960	49.9	48.7	44.3	44.2	45.0	44.2	40.4
Meat products.....1956	40.4	41.6	41.9	40.2	40.2	40.0	40.0
1957	40.0	40.8	42.2	40.2	40.0	40.0	40.0
1958	40.0	40.7	42.2	40.1	40.0	40.0	40.0
1959	40.6	41.7	42.3	40.2	40.0	40.0	40.0
1960	40.7	41.7	41.8	40.2	40.0	40.1	40.0
Iron and its products.....1956	40.4	43.0	40.8	41.2	41.0	41.5	40.1
1957	40.3	42.7	40.6	41.1	40.3	41.4	40.2
1958	40.2	42.7	40.5	41.2	40.2	40.9	40.2
1959	40.2	42.4	40.5	41.1	40.2	41.2	40.2
1960	40.2	42.3	40.5	41.2	40.1	41.6	40.2
Woollen yarn and cloth.....1956	43.8	46.4	44.7	41.1	..	..	42.3
1957	42.3	46.7	44.5	..	..	..	..
1958	43.3	46.7	44.2	..	..	..	..
1959	43.4	45.5	43.6	..	..	..	..
1960	42.6	45.1	43.0	..	..	..	..

¹ Exclusive of Newfoundland.

Table 22 gives summary data on working conditions of plant and office employees in manufacturing industries for the years 1957 to 1961. The percentages in this table denote the proportions which employees—plant or office—of establishments reporting specific items bear to the total number of all such employees in all establishments replying to the survey; they are not necessarily the proportions of employees actually covered by the various items.

It will be noted that for the years 1957 and 1958 the number of establishments shown as having plant employees is identical with the number having office employees, while for 1959 and subsequent years these numbers differ. The explanation is that in 1959 and subsequent years separate counts of establishments having plant workers and establishments having office employees were made, while in previous years counts of establishments were obtained without distinguishing between those with both plant and office employees and those with either one or the other only.

22.—Summary of Selected Working Conditions of Plant and Office Employees in Manufacturing Industries, 1957-61

Item	1957	1958	1959	1960	1961
COVERAGE					
Plant Employees—					
Reporting establishments..... No.	6,105	6,240	7,902	8,028	8,320
Employees..... "	804,953	758,943	819,401	809,736	778,475
Office Employees—					
Reporting establishments..... No.	6,105	6,240	7,658	7,732	8,012
Employees..... "	224,941	226,973	229,233	234,618	242,360
PERCENTAGES OF PLANT EMPLOYEES					
Standard Weekly Hours—					
40 and under.....	66	70	70	70	72
Over 40 and under 44.....	11	9	9	10	8
44.....	5	4	5	4	4
45.....	9	8	8	8	8
Over 45 and under 48.....	2	2	1	1	1
48.....	4	4	4	4	4
Over 48.....	3	3	3	3	3
Employees on a five-day week.....	88	88	89	90	90
Vacation with Pay—					
Two weeks with pay.....	95	95	94	86 ¹	88 ¹
After: 1 year or less.....	18	23	23	20	23
2 years.....	13	14	14	14	13
3 years.....	30	28	28	26	26
4-5 years.....	31	28	26	25	25
Other periods.....	3	2	3	1	1
Three weeks with pay.....	68	73	71	72	72
After: Less than 10 years.....	1	4	6	6	7
10 years.....	5	8	8	11	19
11-14 years.....	2	4	4	4	6
15 years.....	51	60	47	45	55
20 years.....	5	4	3	2	2
Other periods.....	4	3	4	4	3
Four weeks with pay.....	12	16	26	31	33
After: 25 years.....	10	12	22	25	27
Other periods.....	2	4	4	6	6
Vacations that do not vary with length of service.....	1	1	1	12 ¹	11 ¹
1 week.....	..	..	..	5	5
2 weeks.....	..	..	..	7	6
Paid Statutory Holidays.....	97	97	95	96	96
1-5.....	11	10	10	10	9
6.....	7	6	7	5	6
7.....	11	11	9	8	8
8.....	54	52	52	53	53
9.....	11	15	14	15	16
More than 9.....	3	3	3	3	3
Pension and Insurance Plans—					
Pension plans.....	69	69	67	68	..
Group life insurance.....	89	90	88	87	..
Wage loss insurance.....	79	82	75	67	..

For footnote, see end of table

**22.—Summary of Selected Working Conditions of Plant and Office Employees
in Manufacturing Industries, 1957-61—concluded**

Item	1957	1958	1959	1960	1961
	PERCENTAGES OF OFFICE EMPLOYEES				
Standard Weekly Hours—					
Under 37½.....	23	26	27	27	27
37½.....	41	41	42	43	43
Over 37½ and under 40.....	9	10	9	8	8
40.....	22	19	18	18	18
Over 40.....	5	4	4	4	4
Employees on a five-day week.....	92	93	95	95	96
Vacation with Pay—					
Two weeks with pay.....	99	99	98	90 ¹	91 ¹
After: 1 year or less.....	91	89	89	79	82
2 years.....	6	6	6	7	7
3 years.....	1	1	2	1	1
5 years.....	1	2	1	2	1
Other periods.....	1	1	..	1	..
Three weeks with pay.....	76	82	82	83	83
After: Less than 10 years.....	8	6	6	7	7
10 years.....	12	16	17	22	23
11—14 years.....	2	4	6	4	7
15 years.....	52	52	49	46	38
20 years.....	4	3	2	2	2
Other periods.....	3	2	2	2	1
Four weeks with pay.....	16	20	32	37	41
After: 25 years.....	12	14	25	28	31
Other periods.....	4	6	7	9	10
Vacations that do not increase with length of service.....	1	1	1	10 ¹	7 ¹
1 week.....	..	..	..	1	1
2 weeks.....	..	..	..	9	6
Paid Statutory Holidays.....	100	98	99	99	99
1—6.....	4	4	5	4	5
7.....	10	9	8	7	6
8.....	61	58	58	60	58
9.....	20	22	23	22	23
More than 9.....	5	5	5	5	6
Pension and Insurance Plans—					
Pension plans.....	81	83	82	81	..
Group life insurance.....	94	94	93	94	..
Wage loss insurance.....	63	63	54	39	..

¹ Distinction between vacation policies providing for increasing vacation periods with increasing service and vacation policies providing for vacations of one stated period regardless of length of service was made for the first time in 1960; thus, in comparing 1960 and 1961 figures with those for previous years, the percentages of employees granted vacations under both policies should be added.

Wages of Farm Labour.—The information on farm wages is provided by volunteer farm correspondents located in all provinces except Newfoundland. The rates presented in Table 23 are average wages paid to all farm help regardless of age and skill. Because the rates reported may cover a wide range of skills, of types of work and of ages of hired workers, the value of the resulting data is considered to be an indicator of trends rather than a measure of absolute wage levels. No attempt has been made to have the wage rates reflect such perquisites as separate housing accommodation, fuel, electricity and food which, under some conditions of hiring, are supplied by employers to their hired farm help.

23.—Average Daily and Monthly Wages of Male Farm Help as at Jan. 15, May 15 and Aug. 15, 1957-61

NOTE.—Figures from 1940 are given in the corresponding table of previous Year Books beginning with the 1943-44 edition.

Province and Year	January 15				May 15				August 15			
	Daily		Monthly		Daily		Monthly		Daily		Monthly	
	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Maritimes—												
1957.....	4.80	6.00	100.00	120.00	4.80	6.00	100.00	121.00	5.00	6.10	103.00	126.00
1958.....	4.90	5.70	93.00	129.00	5.00	5.80	98.00	130.00	5.00	6.00	98.00	131.00
1959.....	4.80	5.90	98.00	127.00	5.00	5.90	103.00	129.00	4.90	6.10	104.00	138.00
1960.....	5.00	6.00	101.00	134.00	5.00	6.40	105.00	134.00	5.10	6.20	102.00	138.00
1961.....	5.00	6.30	108.00	136.00	5.10	6.50	107.00	145.00	5.20	6.30	107.00	138.00
Quebec—												
1957.....	5.20	6.50	102.00	141.00	5.60	6.60	108.00	145.00	5.80	7.20	113.00	145.00
1958.....	5.30	6.80	103.00	139.00	5.60	6.90	106.00	146.00	5.60	7.30	115.00	149.00
1959.....	5.60	7.00	106.00	145.00	5.50	6.90	110.00	147.00	6.10	7.30	117.00	156.00
1960.....	5.70	7.10	107.00	148.00	5.80	7.10	111.00	149.00	6.00	7.40	120.00	160.00
1961.....	5.80	7.00	110.00	154.00	6.00	7.30	110.00	149.00	6.30	7.60	123.00	161.00
Ontario—												
1957.....	5.50	7.10	98.00	139.00	5.70	7.00	104.00	143.00	6.20	7.80	105.00	141.00
1958.....	5.60	7.10	101.00	139.00	5.90	7.40	106.00	145.00	6.10	8.00	105.00	143.00
1959.....	5.70	7.20	105.00	143.00	6.10	7.50	113.00	154.00	6.40	8.10	116.00	156.00
1960.....	5.90	7.60	110.00	155.00	6.30	8.10	117.00	156.00	6.20	8.40	116.00	162.00
1961.....	6.10	7.80	111.00	156.00	6.40	8.10	119.00	162.00	6.80	8.70	120.00	164.00
Manitoba—												
1957.....	5.20	7.20	82.00	123.00	5.80	7.40	118.00	151.00	6.80	8.20	121.00	146.00
1958.....	5.40	7.00	91.00	126.00	6.30	7.80	126.00	155.00	6.50	8.20	124.00	157.00
1959.....	5.40	6.80	92.00	127.00	6.10	7.40	128.00	155.00	7.10	8.40	133.00	161.00
1960.....	5.30	6.90	93.00	132.00	6.20	8.00	133.00	160.00	7.00	8.40	136.00	167.00
1961.....	5.90	7.30	105.00	141.00	6.40	8.10	135.00	165.00	6.90	8.50	137.00	167.00
Saskatchewan—												
1957.....	5.10	6.70	82.00	112.00	6.40	7.60	131.00	166.00	7.30	8.90	135.00	168.00
1958.....	5.10	6.90	91.00	125.00	6.50	7.80	137.00	169.00	7.30	8.90	137.00	168.00
1959.....	5.50	7.10	97.00	131.00	6.50	8.00	140.00	170.00	7.30	8.70	142.00	178.00
1960.....	5.70	7.40	98.00	138.00	6.70	8.60	143.00	181.00	7.30	9.20	147.00	184.00
1961.....	5.80	7.40	107.00	140.00	6.90	8.80	145.00	186.00	7.20	9.00	148.00	185.00
Alberta—												
1957.....	5.40	6.80	101.00	137.00	6.40	8.00	130.00	166.00	6.70	8.20	127.00	164.00
1958.....	5.60	7.00	109.00	143.00	6.50	8.40	132.00	171.00	7.30	8.70	132.00	159.00
1959.....	5.60	7.30	112.00	152.00	6.60	8.50	138.00	176.00	7.10	8.50	144.00	183.00
1960.....	6.30	8.00	119.00	167.00	6.90	8.80	142.00	180.00	7.10	8.80	141.00	180.00
1961.....	6.00	7.70	118.00	161.00	7.00	8.90	143.00	188.00	7.30	9.00	117.00	182.00
British Columbia—												
1957.....	7.20	8.40	118.00	171.00	6.60	8.50	127.00	182.00	7.30	8.50	121.00	178.00
1958.....	7.10	8.30	122.00	179.00	7.20	9.00	134.00	186.00	7.40	9.30	130.00	185.00
1959.....	7.00	8.80	128.00	186.00	7.60	9.70	138.00	193.00	7.20	9.40	139.00	195.00
1960.....	7.30	9.10	132.00	201.00	7.40	9.50	139.00	196.00	7.70	9.60	146.00	205.00
1961.....	7.30	9.30	139.00	200.00	7.80	9.90	144.00	201.00	7.90	9.70	147.00	209.00
Totals—												
1957.....	5.20	6.50	96.00	134.00	5.60	6.90	118.00	156.00	6.10	7.50	118.00	153.00
1958.....	5.30	6.60	101.00	139.00	5.80	7.10	118.00	156.00	6.00	7.60	120.00	154.00
1959.....	5.40	6.80	106.00	144.00	5.80	7.20	123.00	159.00	6.30	7.70	128.00	167.00
1960.....	5.50	7.00	111.00	155.00	5.90	7.50	128.00	163.00	6.20	7.80	129.00	169.00
1961.....	5.70	7.10	113.00	155.00	6.10	7.70	131.00	172.00	6.40	7.90	131.00	171.00

Section 5.—Unemployment Insurance*

During the depression of the 1930's the need for a nation-wide scheme of unemployment insurance became recognized. In 1935 the Employment and Social Insurance Act was passed by the Federal Parliament but was subsequently declared invalid by the Privy Council. Later, by consent of the provinces, an amendment to the British North America Act was obtained empowering the Federal Parliament to legislate on unemployment insurance and in 1940 the Unemployment Insurance Act was passed, making provision for a compulsory contributory unemployment insurance scheme and also for the establishment of a national employment service to operate in conjunction with and ancillary to the unemployment insurance operations carried on under the Act. The Act, which came into effect on July 1, 1941, was later amended on several occasions and was replaced by a new Unemployment Insurance Act passed on July 1, 1955 and effective Oct. 2, 1955.

Legislation provides for compulsory coverage of some four-fifths of all non-agricultural employees under an insurance program administered by the Federal Government, and requires employers to join with their insurable employees and the Government in building up a fund. This fund is held in trust by the Unemployment Insurance Commission for the payment of benefits to unemployed insured persons. The Act is administered by a Commission of three persons appointed by the Governor in Council, of whom one is the Chief Commissioner; one Commissioner, other than the Chief Commissioner, is appointed after consultation with employer organizations and the other after consultation with employee organizations.

The Unemployment Insurance Act applies to all persons employed under a contract of service, except the following: employment in specified industries or occupations such as agriculture, horticulture and forestry (effective Jan. 1, 1956, coverage was also extended to certain employments in these three industries); the Canadian Armed Forces; the permanent public service of the Federal Government; provincial government employees except where insured with the concurrence of the government of the province; certified permanent employees of municipal or public authorities; private domestic service; private-duty nursing; teaching; certain director-officers of corporations; workers on other than an hourly, daily or piece rate earning more than \$5,460 a year effective Sept. 27, 1959, unless they elect to continue as insured persons; employees in a charitable institution or in a hospital not carried on for purpose of gain except where the institution or hospital consents to insure certain groups or classes of persons with the concurrence of the Commission. All persons paid by the hour, day, or at a piece rate (including a mileage rate) are insured regardless of amount of earnings, together with all employees who receive \$5,460 or less at weekly, monthly, yearly or commission rates.

Under the Canadian Unemployment Insurance Act, benefit payments are made out of a Fund derived from moneys provided by Parliament and from contributions by insured employed persons and their employers. The amount of the employee contribution is determined by his weekly earnings and, since 1950, an equal contribution is required from the employer. Federal Government participation amounts to one-fifth of the aggregate employer-employee contribution. In addition, administrative costs are assumed by the Federal Government. Contributions became payable on July 1, 1941 and by Mar. 31, 1961 a total of \$3,168,000,000 had been provided from these three sources; accruals from investment over the period brought the net revenue to \$3,436,000,000. Investment transactions, as authorized by an Investment Committee, are carried out by the Bank of Canada.

Benefits became payable on Jan. 27, 1942 and by Mar. 31, 1961 a total of \$3,251,000,000 had been paid, the balance in the fund at that date being \$184,700,000.

* Prepared by the Unemployment Insurance Section, Labour Division, Dominion Bureau of Statistics; statistics of unemployment insurance are compiled and published by the DBS from material supplied by the Unemployment Insurance Commission.

Statistics of the Operation of the Act.—In order to assess the impact of changing economic conditions on the insurance scheme, provision is made for the collection of current operational data, such as claims filed and processed in a month, and weeks and amount of benefit paid. These data, as published monthly in the *Statistical Report on the Operation of the Unemployment Insurance Act* (Catalogue No. 73-001), are used for administrative purposes as well as public information regarding financial and other aspects of the scheme. The number of initial and renewal claims filed during a month provides an approximation of separations from insured employment during the period while the count of claimants reporting at the month-end is a valuable indicator of the extent to which claimants maintain contact with local offices of the Commission. During the year 1961 there were 2,460,000 claims filed at local offices of the Commission. On the average, slightly over 487,000 persons were on claim at the end of each month and total payments amounted to \$493,971,000. These figures compare with 2,700,000 claims, an average of 518,000 persons on claim at the end of each month, and benefit payments amounting to \$481,836,000 during 1960. The average weekly payment in 1961, at \$23.82, was slightly higher than the 1960 figure of \$22.31.

24. — Claims Filed, Claimants and Amount Paid, by Month, 1960 and 1961

Month	1960			1961		
	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid	Initial and Renewal Claims Filed	Claimants at End of Month	Amount Paid
	'000	'000	\$'000	'000	'000	\$'000
January.....	307	783	54,345	344	847	67,660
February.....	240	814	62,586	235	873	70,989
March.....	284	823	74,845	259	838	85,188
April.....	215	715	61,768	210	713	64,540
May.....	166	364	52,206	162	341	58,704
June.....	128	296	26,842	113	267	25,890
July.....	140	294	19,703	126	255	18,551
August.....	150	280	21,357	121	229	18,866
September.....	140	280	21,186	122	229	16,082
October.....	178	330	20,651	158	269	17,115
November.....	304	485	26,584	253	386	20,938
December.....	448	754	39,766	358	601	29,447
Totals.....	2,700	518¹	481,836	2,460	487¹	493,971

¹ Average of month-end data.

In addition to the monthly data published on the operation of the Unemployment Insurance Act, annual tabulations are compiled regarding persons employed in insurable employment and benefit periods established and terminated. These data are published in the annual report on *Benefit Periods Established and Terminated under the Unemployment Insurance Act* (Catalogue No. 73-001). The data on the insured population in Table 25 were obtained from returns from the renewal of insurance books and contribution cards at June 1, 1959 and June 1, 1960. Included are persons contributing in insurable employment on those dates and persons on claim. The number insured at June 1, 1960 increased by 36,680 from the previous book renewal to 4,109,580. Unemployment insurance was extended to fishermen on Apr. 1, 1957. This coverage change is interesting since the majority of commercial fishermen in Canada are not wage-earners but sharesmen or lone workers. It was decided to treat as the "employer" the person who first acquires the catch from the person who does the actual fishing. In some instances this is his actual employer, in others it is the buyer of the catch, and in still others it is the person or organization that markets the catch for the fisherman. Fishermen were not considered for benefit until the 1957-58 seasonal benefit period.

25.—Persons Insured under the Unemployment Insurance Act, by Industrial Group and Sex, 1959 and 1960

NOTE.—Based on a 10-p.c. sample of contributors and claimants at June 1.

Industry	1959		1960	
	Males	Females	Males	Females
	No.	No.	No.	No.
Agriculture	8,150	1,470	8,320	1,530
Forestry and Logging	61,250	1,760	58,240	1,690
Fishing, Hunting and Trapping	6,640	80	7,430	130
Mining, Quarrying and Oil Wells	100,320	4,040	98,890	3,730
Metal mining.....	61,290	1,300	61,440	1,210
Fuels.....	22,160	1,690	21,130	1,460
Non-metal mining.....	9,510	230	10,080	230
Quarrying, clay and sand pits.....	3,790	90	3,840	70
Prospecting.....	3,570	730	2,400	760
Manufacturing	978,690	316,990	982,200	304,350
Foods and beverages.....	129,770	45,990	129,080	44,810
Tobacco and tobacco products.....	4,060	5,610	4,140	4,890
Rubber products.....	16,060	4,390	17,320	4,830
Leather products.....	18,520	15,190	16,610	13,920
Textile products (except clothing).....	40,320	23,460	39,270	22,810
Clothing (textile and fur).....	32,250	79,300	30,870	73,600
Wood products.....	101,650	10,040	98,970	9,820
Paper products.....	76,710	13,740	76,640	13,520
Printing, publishing and allied industries.....	44,180	20,560	45,800	20,800
Iron and steel products.....	175,680	19,780	178,260	20,410
Transportation equipment.....	130,670	11,520	133,710	10,930
Non-ferrous metal products.....	50,390	8,200	50,720	7,830
Electrical apparatus and supplies.....	52,170	24,750	52,840	23,160
Non-metallic mineral products.....	35,630	4,450	33,150	4,110
Products of petroleum and coal.....	10,170	1,780	10,230	940
Chemical products.....	39,700	15,180	43,080	15,170
Miscellaneous manufacturing.....	20,760	13,050	21,510	12,800
Construction	307,790	9,280	265,960	9,560
General contractors.....	193,080	4,830	163,950	5,360
Subcontractors.....	114,710	4,450	102,010	4,200
Transportation, Storage and Communications	308,720	62,330	311,670	59,890
Transportation.....	269,800	21,480	269,350	20,740
Storage.....	14,740	1,910	15,530	1,770
Communications.....	24,180	38,940	26,790	37,380
Public Utility Operation	40,360	7,790	39,410	7,600
Trade	436,570	262,750	441,370	262,450
Wholesale.....	143,930	46,890	152,550	48,680
Retail.....	292,640	215,860	288,820	213,770
Finance, Insurance and Real Estate	55,000	101,330	59,030	102,730
Service	306,820	231,870	311,070	237,830
Community.....	24,090	31,630	26,980	34,910
Government.....	136,840	34,550	134,350	35,150
Recreation.....	14,970	6,990	15,650	7,290
Business.....	38,670	39,980	40,690	40,010
Personal.....	92,250	118,720	93,400	120,470
Unspecified	16,340	3,660	13,080	3,360
Claimants	314,800	128,100	379,470	138,590
Totals, All Industries	2,941,450	1,131,450	2,976,140	1,133,440

The following statement shows the current weekly rates of contribution and benefit that became effective Sept. 27, 1959, and those in effect from Oct. 2, 1955 until that date. The weekly contribution is based on actual earnings in the week irrespective of the number of days in which the earnings are obtained; the employer pays a like amount. The benefit rates are calculated on the average weekly contributions for the last 30 weeks in the 104 weeks preceding claim. A claimant must have, to qualify for regular benefit, at least 30 weekly contributions in the last 104 weeks prior to claim; eight weekly contributions since the start of the last preceding regular benefit period or in the last year prior to claim, whichever is the shorter period; and 24 weekly contributions since the start of the last preceding benefit period, or in the year prior to the claim, whichever is the longer period.

WEEKLY RATES OF CONTRIBUTION AND BENEFIT UNDER THE UNEMPLOYMENT INSURANCE ACT

Range of Weekly Earnings	Weekly Con- tribution	Range of Average Weekly Contributions	Weekly Rates of Benefit		Earnings not Deducted	
			Person Without Dependant	Person With Dependant	Person Without Dependant	Person With Dependant
EFFECTIVE OCT. 2, 1955						
	cts.	cts.	\$	\$	\$	\$
Under \$9.....	8 ¹	Under 20.....	6	8	2	2
\$ 9 and under \$15.....	16	20 and under 27.....	9	12	3	3
15 " " 21.....	24	27 " " 33.....	11	15	4	4
21 " " 27.....	30	33 " " 39.....	13	18	5	5
27 " " 33.....	36	39 " " 45.....	15	21	6	6
33 " " 39.....	42	45 " " 50.....	17	24	7	7
39 " " 45.....	48	50 " " 54.....	19	26	9	9
45 " " 51.....	52	54 " " 58.....	21	28	11	11
51 " " 57.....	56	58 to 60.....	23	30	13	13
57 or over.....	60					
EFFECTIVE SEPT. 27, 1959						
	cts.	cts.	\$	\$	\$	\$
Under \$9.....	10 ¹	Under 25.....	6	8	3	4
\$ 9 and under \$15.....	20	25 and under 34.....	9	12	5	6
15 " " 21.....	30	34 " " 42.....	11	15	6	8
21 " " 27.....	38	42 " " 50.....	13	18	7	9
27 " " 33.....	46	50 " " 57.....	15	21	8	11
33 " " 39.....	54	57 " " 63.....	17	24	9	12
39 " " 45.....	60	63 " " 69.....	19	26	10	13
45 " " 51.....	66	69 " " 75.....	21	28	11	14
51 " " 57.....	72	75 " " 82.....	23	30	12	15
57 " " 63.....	78	82 " " 90.....	25	33	13	17
63 " " 69.....	86	90 or over.....	27	36	14	18
69 or over.....	94					

¹ A half stamp, except for fishermen.

The duration of regular benefit is related to the contribution history—one week's benefit for every two weeks' contributions in the past 104 weeks with a maximum of 52 weeks (36 weeks prior to Sept. 27, 1959). Disqualifications for benefit include: loss of work owing to a labour dispute in which the contributor is participating or directly interested; unwillingness to accept suitable employment; being an inmate of any prison or any institution supported out of public funds; refusal to attend a course of instruction or training if directed to do so; residence outside Canada unless otherwise prescribed. Disqualification of a claimant for a period not exceeding six weeks may be imposed if an employee is discharged by reason of his own misconduct or leaves the employment voluntarily without just cause or refuses suitable employment.

Seasonal benefit is payable in the period Dec. 1 to mid-May to certain claimants whose benefits have been exhausted or who have insufficient contributions to qualify for regular benefit.

Table 26 distributes by province persons establishing regular benefit periods, regular benefit periods terminated, average weeks paid and average dollar benefit paid on these terminations. A claimant establishes a *regular benefit period* when he submits his claim in the prescribed manner and proves he has fulfilled the minimum contribution requirements. The duration of benefit authorized, the weekly rate authorized and total entitlement are then calculated and the claimant's benefit may be drawn upon during successive intervals of unemployment. His benefit period terminates either when he has exhausted the amount authorized or when 12 months have elapsed since he established, whichever comes first. The number establishing benefit periods in 1960 increased to 1,065,750 from 985,148 in 1959. The duration of paid benefit in 1960 averaged 13.94 weeks, compared with 13.54 weeks in 1959. Ordinary benefit paid averaged \$315.55 on terminations in 1960, up from \$298.90 on terminations in 1959.

26.—Persons Establishing Regular Benefit Periods, Benefit Periods Terminated, and Duration and Amount of Benefit Paid, by Province, 1959 and 1960

NOTE.—Based on a 25-p.c. sample in 1959 and a 20-p.c. sample in 1960.

Province	1959				1960			
	Persons Establishing Benefit Periods	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination	Persons Establishing Benefit Periods	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination
	No.	No.	No.	\$	No.	No.	No.	\$
Newfoundland.....	22,168	24,252	15.00	345.03	25,060	29,465	14.64	348.46
Prince Edward Island.....	4,536	4,408	15.38	294.73	4,330	5,460	15.98	326.95
Nova Scotia.....	41,316	47,532	14.77	321.20	44,655	50,275	14.13	305.81
New Brunswick.....	36,476	37,764	14.73	314.50	38,555	45,210	14.36	313.57
Quebec.....	312,408	324,796	14.53	319.60	328,525	377,670	14.40	323.64
Ontario.....	349,640	373,448	12.69	280.25	379,535	420,595	13.63	310.95
Manitoba.....	36,128	39,172	13.20	281.31	43,365	43,525	13.86	302.02
Saskatchewan.....	25,748	26,816	13.69	296.62	29,680	31,040	14.24	316.02
Alberta.....	49,044	51,264	12.12	270.69	58,805	58,800	12.65	288.31
British Columbia.....	107,684	116,596	12.96	296.19	112,240	128,280	13.69	320.25
Totals.....	985,148	1,046,048	13.54	298.90	1,065,750	1,190,320	13.94	315.55

Table 27 gives regular benefit periods terminated and average weeks paid, classified by the age of the claimant and by his occupation.

27.—Regular Benefit Periods Terminated and Duration of Benefit Paid, classified by Age of Claimant and Occupation, 1959 and 1960

NOTE.—Based on a 25-p.c. sample in 1959 and a 20-p.c. sample in 1960.

Age Group	1959		1960	
	Benefit Periods Terminated	Average Weeks Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination
	No.	No.	No.	No.
Age Group				
Under 20 years.....	41,888	12.52	46,935	13.00
20 — 24 ".....	178,600	13.04	205,130	13.40
25 — 34 ".....	309,824	12.83	342,995	12.99
35 — 44 ".....	215,444	12.78	247,880	13.16
45 — 54 ".....	158,196	13.48	181,425	13.84
55 — 64 ".....	89,540	15.10	107,620	15.57
65 or over.....	44,420	22.38	51,015	24.04
Unspecified.....	8,136	12.99	7,320	14.20
Totals.....	1,046,048	13.54	1,190,320	13.94

27.—Regular Benefit Periods Terminated and Duration of Benefit Paid, classified by Age of Claimant and Occupation, 1959 and 1960—concluded

Occupation	1959		1960	
	Benefit Periods Terminated	Average Weeks Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination
Occupation	No.	No.	No.	No.
Managerial.....	8,244	15.50	8,605	17.36
Professional.....	10,948	13.83	11,510	13.04
Clerical.....	98,064	16.55	112,805	17.20
Transportation.....	97,912	13.20	112,040	13.23
Communications.....	9,212	18.36	9,845	19.41
Commercial.....	56,932	15.42	65,340	15.61
Financial.....	1,092	13.13	1,215	12.98
Service.....	86,596	16.19	97,575	16.83
Personal.....	44,784	15.84	49,150	16.60
Domestic.....	29,140	15.78	33,460	15.80
Protective.....	10,880	18.87	12,675	20.90
Other.....	1,852	15.10	2,290	14.58
Agricultural.....	6,352	14.50	8,675	14.42
Fishing, trapping and logging.....	42,672	13.16	52,550	12.69
Fishing and trapping.....	1,392	13.26	1,855	14.00
Logging.....	41,280	13.16	50,695	12.64
Mining.....	27,388	12.60	24,170	11.35
Manufacturing and mechanical.....	217,392	11.60	239,460	12.32
Electric light and power.....	15,512	13.60	16,485	13.85
Construction.....	138,244	12.51	161,795	12.75
Labourers.....	215,512	13.24	250,165	13.75
Unspecified.....	13,976	13.80	18,085	14.22

Table 28 gives the provincial distribution of persons establishing seasonal benefit periods in 1959 and 1960, average weeks paid and average benefits paid. The average duration of paid seasonal benefit was 10.52 weeks in 1959 and 10.40 weeks in 1960; the average benefit was \$221.43 in 1959 and \$223.17 in 1960.

28.—Persons Establishing Seasonal Benefit Periods, Duration of Benefit and Amount Paid, by Province, 1959 and 1960

NOTE.—Based on a 10-p.c. sample.

Province	1959 ¹			1960 ²		
	Persons Establishing Benefit Periods	Average Weeks Paid	Average Amount Paid	Persons Establishing Benefit Periods	Average Weeks Paid	Average Amount Paid
	No.	No.	\$	No.	No.	\$
Newfoundland.....	26,370	12.63	258.88	29,530	13.21	279.78
Prince Edward Island.....	6,010	12.67	242.95	6,230	12.67	254.50
Nova Scotia.....	27,070	11.35	227.38	26,500	11.56	239.20
New Brunswick.....	33,050	11.50	233.23	30,850	11.43	237.63
Quebec.....	149,830	10.35	220.94	148,090	10.14	220.95
Ontario.....	112,190	10.05	208.74	113,680	9.77	206.63
Manitoba.....	15,870	9.96	207.33	17,250	9.67	204.71
Saskatchewan.....	12,280	10.06	212.68	13,740	9.86	210.63
Alberta.....	17,100	9.57	207.80	18,400	8.81	192.58
British Columbia.....	44,540	10.21	230.28	39,560	10.34	236.46
Totals.....	444,310	10.52	221.43	443,830	10.40	223.17

¹ Dec. 1, 1958 to May 16, 1959.

² Dec. 1, 1959 to May 21, 1960.

Employment Service.—The Unemployment Insurance Commission operates a free employment service under authority of the Unemployment Insurance Act. The public employment offices, which had functioned under a joint federal-provincial arrangement for more than two decades, were taken over by the Commission on Aug. 1, 1941, and additional offices were established in all provinces except Quebec. The Commission established its own offices in Quebec and the provincial government thereupon reduced the number of its offices.

29.—Applications for Employment, Positions Offered and Placements Effected by Employment Offices 1951-60, and by Province, 1959 and 1960

NOTE.—Figures by province from 1920-57 are given in the corresponding table of previous Year Books beginning with the 1926 edition. Totals for 1920-37 are given in the 1938 edition, p. 766; for 1938 in the 1939 edition, p. 802; for 1939-48 in the 1951 edition, p. 686; and for 1949 and 1950 in the 1960 edition, p. 790.

Year and Province	Applications Registered		Vacancies Notified		Placements Effected	
	Males	Females	Males	Females	Males	Females
	No.	No.	No.	No.	No.	No.
1951.....	1,541,208	623,467	943,773	387,795	655,933	262,305
1952.....	1,781,689	664,485	865,152	444,926	677,777	302,730
1953.....	1,980,918	754,358	822,852	466,310	661,167	332,239
1954.....	2,129,110	840,877	665,029	423,291	545,452	316,136
1955.....	2,161,081	829,741	797,917	435,056	642,726	310,850
1956.....	2,182,904	809,277	986,653	438,967	748,464	298,515
1957.....	2,714,759	938,704	720,798	398,740	586,780	290,924
1958.....	2,790,412	1,012,974	620,394	374,245	548,663	291,466
1959.....	2,753,997	1,037,536	753,904	421,927	661,872	324,201
1960.....	3,046,572	1,107,427	724,098	404,824	641,872	316,428
Newfoundland.....	1959 66,877	6,372	5,834	1,667	4,437	936
1960 67,892	6,199	8,745	1,857	7,750	1,212	
Prince Edward Island.....	1959 16,761	5,456	5,820	2,933	4,574	2,519
1960 17,424	5,429	6,615	2,958	5,378	2,550	
Nova Scotia.....	1959 100,461	28,078	20,546	10,240	19,043	7,955
1960 107,594	30,500	24,354	11,838	22,821	9,261	
New Brunswick.....	1959 106,508	28,249	23,991	8,845	23,396	7,492
1960 117,564	29,670	31,656	8,794	30,641	7,235	
Quebec.....	1959 752,043	263,248	188,002	96,170	165,084	74,347
1960 838,206	279,285	201,677	94,463	177,195	74,824	
Ontario.....	1959 951,508	389,818	280,296	147,034	246,678	110,561
1960 1,050,513	426,183	240,127	142,087	212,943	108,530	
Manitoba.....	1959 137,079	55,497	54,098	29,186	45,927	21,478
1960 144,674	56,922	45,278	26,833	38,441	20,209	
Saskatchewan.....	1959 90,562	36,315	31,775	15,672	27,736	11,770
1960 100,928	38,607	32,470	15,118	29,101	11,493	
Alberta.....	1959 171,033	68,116	66,632	36,611	56,832	24,828
1960 191,993	75,408	60,980	34,586	52,833	24,774	
British Columbia.....	1959 361,165	156,387	76,910	73,569	68,165	62,315
1960 409,784	159,224	72,196	66,290	64,769	56,340	

Section 6.—Technical and Vocational Training

The federal Department of Labour, under the Technical and Vocational Training Assistance Act (SC 1960-61, c. 6), co-operates with provincial government departments, employers' organizations, organized labour and Federal Government departments and agencies, including Crown companies and the Armed Forces, in the promotion, organization and development of all types of publicly financed training programs deemed necessary to fit persons for employment or to upgrade workers in their present positions.

The federal-provincial program under which all classes and training projects are operated is known as Canadian Vocational Training. In conducting this program, the Minister of Labour receives advice and co-operation from the National Technical and Vocational Training Advisory Council which consists of representatives of provincial governments, employers, organized labour and other bodies concerned with vocational training in Canada. Problems regarding apprenticeship, including federal participation therein, are referred to the Apprenticeship Training Advisory Committee which reports to the Minister through the Council.

The established procedure is for the provinces to provide training facilities and to operate all of the training programs. The provinces are then reimbursed by the Federal Government at the rates specified in the agreements under which expenditures are undertaken.

There are two federal-provincial agreements governing the nature and extent of the sharable expenditures for different types of training: the Technical and Vocational Training Agreement and the Apprenticeship Training Agreement. The provisions of these agreements are outlined in the Education and Research Chapter at p. 296. More detailed information is given in the annual report of the Canadian Vocational Training Branch, published as a supplement to the annual report of the Department of Labour.

Section 7.—Industrial Accidents and Workmen's Compensation

Subsection 1.—Fatal Industrial Accidents

Statistics of fatal industrial accidents have been compiled by the federal Department of Labour since 1903. The data are now obtained from provincial Workmen's Compensation Boards, the Board of Transport Commissioners and other government authorities, and from press reports.

30.—Fatal Industrial Accidents, by Industry, 1957-60

Industry	Numbers				Percentages of Total			
	1957	1958	1959	1960	1957	1958	1959	1960
Agriculture.....	92	97	101	69	6.6	7.6	7.6	6.1
Logging.....	141	129	143	131	10.2	10.2	10.8	11.6
Fishing and trapping.....	23	38	72	27	1.7	3.0	5.4	2.4
Mining, non-ferrous smelting and quarrying.....	185	231	175	180	13.3	18.2	13.2	15.9
Manufacturing.....	209	166	195	186	15.1	13.1	14.7	16.4
Construction.....	340	281	297	199	24.5	22.1	22.4	17.4
Electricity, gas and water production and supply.....	42	31	33	36	3.0	2.4	2.5	3.2
Transportation, storage and communications.....	207	163	192	154	14.9	12.8	13.7	13.6
Trade.....	66	40	50	51	4.8	3.2	3.8	4.5
Finance.....	2	4	2	2	0.1	0.3	0.2	0.2
Service.....	80	89	76	99	5.8	7.0	5.7	8.7
Totals.....	1,357	1,269	1,326	1,134	100.0	100.0	100.0	100.0

Causes of Industrial Fatalities.—During 1960, of the 1,134 fatal accidents to industrial workers, 293 were the result of the victims being struck by objects—55 by falling trees or limbs, 35 by materials falling from stockpiles and loads, 33 by landslides or cave-ins, 29 by objects falling or flying in mines and quarries, 26 by automobiles or trucks and 20 by trains or other railway vehicles. Collisions, derailments, wrecks, etc., were responsible for 248 fatalities—automobiles and trucks were involved in 135, tractors and loadmobiles in 70, aircraft in 25 and railways in 16. Falls and slips were responsible for 247 industrial deaths, of which 230 were falls to different levels, including 102 deaths caused by falls into rivers, lakes, seas or harbours, 25 by falls from scaffolds or stagings and 20 from buildings, roofs or towers. The classification “caught in, on, or between objects, vehicles, etc.” caused 92 fatalities, 21 of which were caused by machinery, 16 by

automobiles and trucks, 15 by tractors and loadmobiles and 12 by hoisting or conveying apparatus. Exposure to dust, poisonous gases and poisonous substances caused 86 fatalities and contact with electric current was responsible for 65. Conflagrations, explosions and exposure to hot substances caused 60 deaths and 22 were the result of over-exertion, strain, etc.

Subsection 2.—Workmen's Compensation*

In all provinces legislation is in force providing for compensation for injury to a workman by accident arising out of and in the course of employment, or for disablement caused by a specified industrial disease, except where the workman is disabled for fewer than a stated number of days. The Acts of all provinces provide for a compulsory system of collective liability on the part of employers. To ensure payment of compensation, each Act provides for an accident fund, administered by the province, to which employers are required to contribute at a rate determined by the Workmen's Compensation Board in accordance with the hazards of the industry. A workman to whom these provisions apply has no right of action against his employer for injury from an accident during employment. In Ontario and Quebec, public authorities, railway and shipping companies, and telephone and telegraph companies are individually liable for compensation as determined by the Board and pay a proportion of the expenses of administration. A federal Act provides for compensation for accidents to Federal Government employees according to the conditions laid down by the Act of the province in which the employee is usually employed. Seamen who are not under a provincial Workmen's Compensation Act are entitled to compensation under the Merchant Seamen Compensation Act.

In all provinces, free medical aid is given to workmen during disability. Compensation is payable in all provinces for anthrax and for poisoning from arsenic, lead, mercury and phosphorus, and silicosis is compensated under certain conditions. Other diseases compensated vary according to the industries of the provinces.

Scope of the Workmen's Compensation Acts.—The Acts vary in scope but in general they cover construction, mining, manufacturing, lumbering, transportation and communications and the operation of public utilities. Undertakings in which not more than a stated number of workmen are usually employed may be excluded, except in Alberta and British Columbia.

Benefits.—Each Act provides for a waiting period, i.e., a minimum period of time during which a workman must be disabled from earning full wages in order to qualify for compensation. In Manitoba, Saskatchewan and Alberta the waiting period is one day. Compensation is not payable when a workman is off work only for the day on which the accident occurs but if he is disabled for a longer time compensation begins from the day following the accident. The waiting period in British Columbia is three days, in Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick four days, and in Quebec and Ontario five days. Where a disability continues beyond the waiting period, compensation is payable from the date of the accident. The waiting period does not restrict the right of the workman to medical aid which, under all the Acts, is given from the date of the accident.

Burial expenses are paid to the amount of \$400 in Quebec, \$300 in Newfoundland, Prince Edward Island, New Brunswick and Ontario, \$250 in Nova Scotia, Saskatchewan, Alberta and British Columbia, and \$200 in Manitoba. In all provinces an additional sum is allowed for transporting the workman's body.

A widow or invalid widower or a foster mother with children under the age limit receives a monthly payment of \$100 in Saskatchewan, \$90 in British Columbia, \$75 in Newfoundland, Quebec, Ontario, Manitoba and Alberta, \$65 in Prince Edward Island, and \$60 in Nova Scotia and New Brunswick. In addition, a lump sum of \$300 is paid in

* More detailed information is given in the Department of Labour publication *Workmen's Compensation in Canada, A Comparison of Provincial Laws*.

Quebec, Ontario, Manitoba and Saskatchewan, \$250 in British Columbia, \$200 in Newfoundland, Prince Edward Island and Alberta, \$150 in Nova Scotia, and \$100 in New Brunswick.

For each child in the care of a parent or foster mother receiving compensation a monthly payment of \$40 is made in Alberta, \$35 in Manitoba, Saskatchewan and British Columbia, \$25 in Newfoundland, Quebec and Ontario, \$22.50 in Nova Scotia, and \$20 in Prince Edward Island and New Brunswick. For each orphan child a monthly payment of \$50 is made in Saskatchewan, \$45 in Manitoba, \$40 in New Brunswick, Alberta and British Columbia, \$35 in Newfoundland, Quebec and Ontario, and \$30 in Prince Edward Island and Nova Scotia. In Alberta, a further amount, not exceeding \$25 a month, may be given at the discretion of the Board, and the maximum allowance payable to a family of orphans is \$120 in Prince Edward Island. In Saskatchewan, the Board may in its discretion make a lump sum payment, not exceeding \$50, to an orphan child.

Invalids excepted, payments to children are not continued beyond the age of 16 years in seven of the provinces but the Board has discretion to pay compensation to the age of 18 (19 in Saskatchewan) if it is considered desirable for a child to continue his education. In Quebec, the age limit is 18 years, and in New Brunswick and British Columbia compensation is paid to the age of 18 if a child is attending school regularly. In Newfoundland, Prince Edward Island and Alberta, payments are made to invalid children only for the length of time the Board considers that the workman would have contributed to their support. In the other provinces payments are continued until recovery.

All the Acts provide that where the only dependants are persons other than consort or children compensation is to be a reasonable sum proportionate to the pecuniary loss but the total monthly amount to be paid to all such dependants is limited to \$100 in Ontario, \$90 in British Columbia, \$85 in Alberta, and \$60 in Prince Edward Island and Nova Scotia. In British Columbia, if a workman leaves dependent parents as well as a widow or orphans, the maximum payable to a parent or parents is \$90 a month. Manitoba provides for a maximum monthly pension of \$75 to a wholly dependent mother and for a maximum of \$60 for other dependants. Compensation to dependants, other than consort or children, is continued only for such time as the Board considers that the workman would have contributed to their support.

Except in Nova Scotia, Alberta and British Columbia, each Act places a maximum on the total amount of benefits payable to dependants if the workman dies. A maximum is placed on the amounts that may be paid to the widow and children and to orphan children in Prince Edward Island—\$170 to the former and \$120 to the latter. The maximum to all dependants is 75 p.c. of the workman's earnings in Newfoundland, New Brunswick, Quebec and Manitoba, and in Ontario and Saskatchewan the average earnings of the workman are the maximum amount payable.

Irrespective of the workman's earnings, however, compensation may not fall below certain minimum monthly amounts. The minimum payable to a consort and one child in Quebec is \$100 a month, to a consort and two children \$125, and to a consort and more than two children \$150; in Manitoba, the minimum is \$110 if there is a consort and one child and \$145 if there is more than one child; in Saskatchewan, the minimum is \$135 a month to a consort and one child and \$170 to a consort and two children plus \$20 a month for each additional child. In Newfoundland, a widow must receive at least \$75 a month with a further payment of \$25 a month for each child under 16 unless the total exceeds \$150. In Ontario, the minimum payable to a widow is \$75 a month with a further payment of \$25 for each child up to but not exceeding \$150 a month.

Compensation for total disablement in all provinces is a periodical payment for the duration of the disability equal to 75 p.c. of average earnings. Except in New Brunswick, the Acts fix minimum sums to be paid for a permanent total disability. The minimum is \$15 a week in Quebec, \$20 in Prince Edward Island, \$25 in Manitoba and British Columbia, \$30 in Saskatchewan, and \$35 a week in Alberta. In Newfoundland, the minimum

is \$65 a month and in Ontario it is \$100 a month. In Nova Scotia, the minimum payment is \$110 a month or, if the totally disabled workman has more than one child under 16, the amount which a widow with the same number of dependent children would receive. If average earnings are less than the minimum amount allowed, the amount of the earnings is paid in all provinces except Nova Scotia and Saskatchewan. For partial disablement, compensation is either 75 p.c. of the difference in earnings before and after the accident or an amount determined by the Board on the basis of impairment of earning capacity estimated from the nature of the injury. In the latter case the workman is entitled to the same fraction of 75 p.c. of earnings as his impairment is of his full earning capacity. In all provinces, if the impairment of earning capacity is 10 p.c. or less (5 p.c. or less in Alberta), a lump sum may be given.

The average earnings on which compensation is based are limited to \$6,000 a year in Saskatchewan, \$5,000 in Quebec, Ontario, Manitoba, Alberta and British Columbia, \$4,000 in Newfoundland, Prince Edward Island and New Brunswick, and \$3,600 in Nova Scotia. If the workman's earnings at the time of accident are not considered a proper basis for compensation, the Board may use as a basis the average earnings of another person in the same grade of work. Compensation paid to a workman under 21 years of age may be raised later if it appears that his earning power would have increased had the injury not occurred.

Table 31 gives the number of industrial accidents reported by each of the provinces and the amount of compensation paid by Workmen's Compensation Boards in the years 1959 and 1960.

31.—Industrial Accidents Reported and Compensation Paid by Workmen's Compensation Boards, 1959 and 1960

Year and Province	Industrial Accidents Reported					Compensation Paid ²
	Medical Aid Only ¹	Temporary Disability	Permanent Disability	Fatal	Total	
	No.	No.	No.	No.	No.	\$
1959						
Newfoundland.....	5,142	4,134	92	17	9,385	1,249,534
Prince Edward Island.....	1,038	800	20	3	1,861	243,096
Nova Scotia.....	10,373	6,451	591	47	17,462	4,152,359 ³
New Brunswick.....	7,076	6,336	148	27	13,587	1,766,063 ⁴
Quebec.....	..	..	..	186	99,258	21,224,923 ⁵
Ontario.....	179,358	70,225	2,612	309	252,504	48,415,769 ⁵
Manitoba.....	12,983	5,314	259	32	18,588	3,416,713
Saskatchewan.....	11,932	9,670	151	47	21,800	2,390,408 ⁶
Alberta.....	27,602	19,743	815	117	48,277	10,471,916
British Columbia.....	41,324	21,717	1,134	161	64,336	19,888,821
Totals, 1959.....	..	..	..	946	547,058	113,219,602
1960						
Newfoundland.....	5,537	4,823	112	26	10,498	1,725,883
Prince Edward Island.....	1,043	731	13	4	1,791	211,103
Nova Scotia.....	10,336	6,977	529	37	17,879	4,544,388
New Brunswick.....	11,482	7,585	212	32	19,311	2,332,930
Quebec.....	..	..	..	220	100,704	23,583,531 ⁵
Ontario.....	172,498	64,992	2,710	269	240,469	50,418,067 ⁵
Manitoba.....	12,787	8,931	331	22	22,071	4,008,765
Saskatchewan.....	12,140	9,725	142	25	22,032	5,255,037
Alberta.....	26,457	19,101	797	116	46,471	8,772,128
British Columbia.....	38,715	21,518	1,037	161	61,431	20,826,428
Totals, 1960.....	..	..	..	912	542,657	121,678,260

¹ Accidents requiring medical treatment but not causing disability for a sufficient period to qualify for compensation; the period varies in the several provinces.

² Includes, except where noted otherwise, payments to compensate loss earnings, medical aid payments, cost of rehabilitation and hospitalization (not including capital expenditures) and pensions paid (not pensions awarded) for temporary and permanent disabilities.

³ Excludes payments for hospitalization and rehabilitation.

⁴ Excludes payments for hospitalization.

⁵ Excludes payments by employers who make direct compensation to their employees; such employees come under Schedule II of the Ontario and Quebec Workmen's Compensation Acts.

⁶ Excludes payments for hospitalization and rehabilitation and funeral and related expenditures.

Section 8.—Organized Labour in Canada

At the beginning of 1961 the membership of labour organizations in Canada was approximately 1,447,000, a slight decline from the January 1960 total. Unions affiliated with the Canadian Labour Congress accounted for 74 p.c. of the organized workers, and approximately 7 p.c. of union members belonged to affiliates of another central body, the Confederation of National Trade Unions which until 1960 was known as the Canadian and Catholic Confederation of Labour. The remainder of union membership was represented either by organizations independent of a central labour congress or, to a lesser extent, by unions having no congress link in Canada but affiliated with the American Federation of Labor and Congress of Industrial Organizations.

Unions belonging to the Canadian Labour Congress had a total membership of 1,071,000, and the Confederation of National Trade Unions had over 98,000 members at the beginning of 1961.

More than two-thirds of the organized workers in Canada are represented by unions that operate in the United States as well. In January 1961, 89 of the 108 international unions active in Canada were affiliates of the Canadian Labour Congress, and 85 of these were also within the American Federation of Labor and Congress of Industrial Organizations. Eleven of the remaining 19 international unions had no congress link in Canada but were affiliated with the AFL-CIO. National and regional unions operating in Canada at the beginning of the year totalled 50, with 18 unions in this group holding CLC affiliation and 13 belonging to the CNTU.

International, national and regional unions had within their ranks close to 1,364,000 workers in a total of 158 organizations ranging in size of their Canadian membership from under ten members to the 82,000 reported by the United Steelworkers of America. The United Brotherhood of Carpenters and Joiners of America, with 65,000 members, continued to rank second among unions in Canada, followed by the International Union, United Automobile, Aircraft and Agricultural Implement Workers of America with 56,000 members. Among national unions, the National Union of Public Employees, with 46,000 members, continued to be the largest for the third consecutive year, followed by the 33,000-member Canadian Brotherhood of Railway, Transport and General Workers.

The grand total of 1,447,000 members reported by labour organizations in 1961 was equal to approximately 32 p.c. of the estimated total number of non-agricultural paid workers in Canada.

32.—Union Membership in Canada, 1931-61

Year	Members	Year	Members	Year	Members
	'000		'000		'000
1931.....	311	1941.....	462	1952.....	1,146
1932.....	283	1942.....	578	1953.....	1,220
1933.....	286	1943.....	665	1954.....	1,268
1934.....	281	1944.....	724	1955.....	1,268
1935.....	281	1945.....	711	1956.....	1,352
1936.....	323	1946.....	832	1957.....	1,386
1937.....	383	1947.....	912	1958.....	1,454
1938.....	382	1948.....	978	1959.....	1,459 ²
1939.....	359	1949 ¹	1,006	1960.....	1,459
1940.....	362	1951 ¹	1,029	1961.....	1,447

¹ Figures for years up to and including 1949 are as at Dec. 31; figures from 1951 are as at Jan. 1.

² Newfoundland included from 1949. ³ Adjustment in coverage resulted in a net addition of approximately 23,000 members for the first time.

33.—Union Membership, by Type of Union and Affiliation, as at January 1961

Type and Affiliation	Unions	Locals	Membership
	No.	No.	No.
International Unions	108	4,382	1,040,208
AFL—CIO/CLC.....	85	3,974	874,228
CLC only.....	4	51	15,251
AFL—CIO only.....	11	53	34,170
Unaffiliated railway brotherhoods.....	2	125	9,801
Other unaffiliated unions.....	6	179	108,758
National and Regional Unions	50	2,155	323,486
CLC.....	18	1,405	157,242
CNTU.....	13	413	91,815
Unaffiliated unions.....	19	337	74,429
Totals, International, National and Regional Unions	158	6,537	1,363,694
Directly Chartered Local Unions	279	279	30,758
CLC.....	220	220	24,116
CNTU.....	59	59	6,642
Independent Local Organizations	129	129	52,490
Grand Totals	566	6,945	1,446,942

34.—International, National and Regional Unions Reporting 1,000 or more Members in Canada as at January 1961

Union	Locals in Canada	Membership in Canada
	No.	No.
Actors Equity Association	1	1,200
Amalgamated Association of Street, Electric Railway and Motor Coach Employees of America	33	12,103
Amalgamated Clothing Workers of America	40	15,000
Amalgamated Lithographers of America	10	3,010
Amalgamated Meat Cutters and Butcher Workmen of North America	34	7,852
American Federation of Grain Millers	8	1,529
American Federation of Musicians of the United States and Canada	32	13,414
American Newspaper Guild	6	3,218
Association of Radio and Television Employees of Canada	12	1,758
Bakers and Confectionery Workers' International Union of America	24	9,141
Bricklayers, Masons and Plasterers' International Union of America	54	5,818
British Columbia Government Employees' Association	51	10,770
Brotherhood of Locomotive Engineers	101	9,236
Brotherhood of Locomotive Firemen and Enginemen	104	8,148
Brotherhood of Maintenance of Way Employees	200	20,000
Brotherhood of Painters, Decorators and Paperhangers of America	58	7,037
Brotherhood of Railroad Signalmen	21	1,361
Brotherhood of Railroad Trainmen	116	21,547
Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees	160	19,918
Brotherhood of Railway Carmen of America	101	20,928
Building Service Employees' International Union	17	11,823
Canadian Air Line Flight Attendants' Association	12	1,100
Canadian Brotherhood of Railway, Transport and General Workers	234	32,835
Canadian Merchant Service Guild, Inc.	2	2,526
Canadian Postal Employees' Association	451	9,860
Canadian Seafood Workers' Union	13	1,800
Canadian Telephone Employees' Association	48	16,236
Canadian Textile Council	9	2,100
Centrale Professionnelle des Employés des Corporations Municipales et Scolaires	42	4,820
Commercial Telegraphers' Union	5	5,213
Communications Workers of America	8	2,924

34.—International, National and Regional Unions Reporting 1,000 or more Members in Canada as at January 1961—continued

Union	Locals in Canada	Membership in Canada
	No.	No.
Distillery, Rectifying, Wine and Allied Workers' International Union of America	14	4,300
Federated Association of Letter Carriers	156	6,520
Fédération Canadienne de l'Imprimerie et de l'Information	25	4,646
Fédération des Auteurs et des Artistes du Canada	4	1,100
Fédération des Travailleurs du Bâtiment du Canada	70	18,800
Fédération des Travailleurs du Bois Ouvré du Canada, Inc.	24	3,961
Fédération Nationale Catholique des Employés du Commerce, Inc.	26	3,500
Fédération Nationale Catholique des Services, Inc.	43	10,400
Fédération Nationale Catholique du Textile, Inc.	28	8,522
Fédération Nationale de la Métallurgie	47	15,436
Fédération Nationale des Employés de l'Industrie Minière, Inc.	12	5,029
Fédération Nationale des Employés des Corporations Municipales et Scolaires du Canada, Inc.	48	3,212
Fédération Nationale du Cuir et de la Chaussure du Canada, Inc.	13	4,150
Fédération Nationale des Travailleurs de l'Industrie du Vêtement, Inc.	28	4,775
Fédération Nationale des Travailleurs de la Pulpe et du Papier, Inc.	41	7,195
Federation of Telephone Workers of British Columbia	21	4,715
Hotel and Restaurant Employees and Bartenders' International Union	35	13,683
International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators of the United States and Canada	53	2,716
International Association of Bridge, Structural and Ornamental Iron Workers	22	9,684
International Association of Fire Fighters	134	10,800
International Association of Heat and Frost Insulators and Asbestos Workers	9	1,391
International Association of Machinists	163	40,055
International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers	35	6,200
International Brotherhood of Bookbinders	20	3,339
International Brotherhood of Electrical Workers	171	35,723
International Brotherhood of Firemen and Oilers	56	2,100
International Brotherhood of Pulp, Sulphite and Paper Mill Workers	109	35,810
International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America	39	40,391
International Chemical Workers' Union	94	14,700
International Hod Carriers, Building and Common Laborers' Union of America	38	20,180
International Ladies' Garment Workers' Union	25	17,593
International Leather Goods, Plastic and Novelty Workers' Union	2	1,150
International Longshoremen's Association	33	7,525
International Longshoremen's and Warehousemen's Union	12	2,300
International Molders and Foundry Workers' Union of North America	39	6,834
International Photo-engravers' Union of North America	9	1,090
International Printing Pressmen and Assistants' Union of North America	62	8,111
International Typographical Union	49	7,313
International Union of Electrical, Radio and Machine Workers	49	11,000
International Union of Elevator Constructors	10	1,249
International Union of Mine, Mill and Smelter Workers	45	33,000
International Union of Operating Engineers	34	14,562
International Union, United Automobile, Aircraft and Agricultural Implement Workers of America	59	56,122
International Union of United Brewery, Flour, Cereal, Soft Drink and Distillery Workers of America	54	6,000
International Woodworkers of America	51	36,688
Journeyman Barbers, Hairdressers, Cosmetologists and Proprietors International Union of America	24	2,015
Marine Workers' Federation	10	2,600
National Association of Broadcast Employees and Technicians	20	1,859
National Council of Canadian Labour	58	11,000
National Union of Public Employees	299	46,023
National Union of Public Service Employees	116	29,000
Northern Electric Employee Association	3	6,821
Office Employees' International Union	43	5,520
Oil, Chemical and Atomic Workers' International Union	51	12,122
Operative Plasterers and Cement Masons' International Association of the United States and Canada	28	4,064
Order of Railroad Telegraphers	10	10,175
Retail Clerks' International Association	12	8,240
Retail, Wholesale and Department Store Union	51	17,000
Saskatchewan Civil Service Association	18	6,519
Saskatchewan Wheat Pool Employees' Association	1	1,692
Seafarers' International Union of North America	3	16,800
Sheet Metal Workers' International Association	45	7,971
Shipyard General Workers' Federation of British Columbia	4	3,125
Textile Workers' Union of America	75	18,000
Tobacco Workers' International Union	11	5,653

**34.—International, National and Regional Unions Reporting 1,000 or more Members
in Canada as at January 1961—concluded**

Union	Locals in Canada	Membership in Canada
	No.	No.
Traffic Employees' Association.....	30	7,900
Trans-Canada Air Lines Sales Employees' Association.....	26	1,100
United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada.....	76	19,851
United Brotherhood of Carpenters and Joiners of America.....	237	64,635
United Cement, Lime and Gypsum Workers' International Union.....	33	3,505
United Electrical, Radio and Machine Workers of America.....	29	18,650
United Fishermen and Allied Workers' Union.....	30	6,655
United Garment Workers of America.....	10	1,766
United Glass and Ceramic Workers of North America.....	26	5,807
United Hatters, Cap and Millinery Workers' International Union.....	11	3,000
United Mine Workers of America.....	64	14,616
United Packinghouse Workers of America.....	148	23,600
United Paper Makers and Paper Workers.....	62	9,424
United Rubber, Cork, Linoleum and Plastic Workers of America.....	46	9,086
United Steelworkers of America.....	406	82,000
United Textile Workers of America.....	35	9,800
Union Catholique des Cultivateurs (Service Forestier).....	5	8,650
Upholsterers' International Union of North America.....	15	3,963
Wood, Wire and Metal Lathers' International Union.....	25	1,103

Section 9.—Strikes and Lockouts

Statistical information on strikes and lockouts in Canada is compiled by the Economics and Research Branch of the Department of Labour on the basis of reports from the Unemployment Insurance Commission. Tables 35 and 36 cover strikes and lockouts involving six or more workers and lasting at least one working day, and strikes and lockouts lasting less than one day or involving fewer than six workers but exceeding a total of nine man-days. The developments leading to work stoppages are often too complex to make it practicable to distinguish statistically between strikes on the one hand and lockouts on the other. However, a work stoppage that is clearly a lockout is not often encountered.

The number of workers involved includes all workers reported on strike or locked out, whether or not they all belonged to the unions directly involved in the disputes leading to work stoppages. Where the number of workers involved varied in the course of a stoppage, the peak figure is used in tabulating annual totals. Workers indirectly affected, such as those laid off as a result of a work stoppage, are not included in the number of workers involved.

Duration of strikes and lockouts in terms of man-days is calculated by multiplying the number of workers involved in each work stoppage by the number of working days the stoppage was in progress. Where the number of workers involved varied during the period of a stoppage, an appropriate adjustment is made in the calculation as far as this is practicable. The duration in man-days of all work stoppages in a year is also shown as a percentage of estimated working time, based on the annual average of all non-agricultural paid workers in Canada.

The data on duration of work stoppages in man-days are provided to facilitate comparison of work stoppages in terms of a common denominator. They are not intended as a measure of the loss of productive time to the economy.

35.—Strikes and Lockouts in Canada, 1952-61

Year	Strikes and Lockouts Beginning during Year	Strikes and Lockouts in Existence during Year			
		Strikes and Lockouts	Workers Involved	Duration in Man-Days	
				Man-Days	Percentage of Estimated Working Time
	No.	No.	No.	No.	
1952.....	216	222	120,818	2,879,960	0.29
1953.....	167	174	55,988	1,324,720	0.13
1954.....	156	174	62,250	1,475,200	0.15
1955.....	149	159	60,090	1,875,400	0.18
1956.....	221	229	88,680	1,246,000	0.11
1957.....	242	249	91,409	1,634,880	0.14
1958.....	253	262	112,397	2,872,340	0.24
1959.....	203	218	100,127	2,286,900	0.19
1960.....	268	274	49,408	738,700	0.06
1961.....	272	287	97,959	1,335,080	0.11

36.—Strikes and Lockouts, by Industry, 1960

Industry	Strikes and Lockouts Beginning during Year	Strikes and Lockouts in Existence during Year		
		Strikes and Lockouts	Workers Involved	Duration in Man-Days
	No.	No.	No.	No.
Logging.....	2	3	101	1,840
Mining.....	18	18	4,806	20,780
Metal.....	6	6	2,520	12,360
Coal, etc.....	7	7	1,880	2,510
Non-metal.....	3	3	356	4,510
Quarrying, etc.....	2	2	50	1,400
Manufacturing.....	100	103	19,967	432,210
Foods and beverages.....	14	15	1,074	18,470
Rubber products.....	4	4	2,005	22,810
Leather products.....	1	2	103	760
Textile products.....	—	1	1,725	53,480
Clothing.....	9	9	922	8,250
Wood products.....	11	11	680	14,730
Paper products.....	2	2	372	12,110
Printing, etc.....	2	2	49	2,440
Iron and steel products.....	29	29	6,312	235,390
Transportation equipment.....	8	8	1,666	17,520
Non-ferrous metal products.....	1	1	52	650
Electrical apparatus and supplies.....	5	5	866	10,930
Non-metallic mineral products.....	8	8	1,913	5,280
Products of petroleum and coal.....	1	1	156	550
Chemical products.....	3	3	1,574	12,260
Miscellaneous manufacturing industries.....	2	2	498	16,580
Construction.....	86	88	15,027	206,290
Transportation, etc.....	31	31	6,503	29,360
Transportation.....	29	29	6,062	24,910
Storage.....	1	1	325	4,230
Communications.....	1	1	116	220
Public Utility Operation.....	6	6	355	1,640
Trade.....	17	17	1,982	39,030
Finance.....	1	1	153	4,750
Service.....	7	7	514	2,800
Community or public service.....	3	3	206	1,560
Government service.....	1	1	21	40
Business service.....	1	1	160	160
Personal service.....	2	2	127	1,040
Totals.....	268	274	49,408	738,700

Section 10.—Canada and the International Labour Organization

The Department of Labour is the officially designated liaison between the Government of Canada and the International Labour Organization. The ILO was established in 1919, in association with the League of Nations under the Treaties of Peace, with the object of improving labour and social conditions throughout the world by international agreement and legislative action. Under an agreement approved by the General Conference of the International Labour Organization and by the United Nations General Assembly in 1946, the Organization became a specialized agency of the United Nations although it retained its autonomy.

The ILO is an association of 102 Member States, financed by their governments and democratically controlled by representatives of those governments and of their organized employers and workers. It is comprised of three main organs: (1) the Governing Body; (2) the International Labour Office; and (3) the International Labour Conference. Since World War II the ILO has extended its field of activities by the establishment of ten tripartite industrial committees to deal with problems of important world industries, by the holding of regional and special technical conferences, and by technical assistance to aid under-developed countries in such fields as co-operatives, social security, vocational training, productivity techniques and employment service organization.

The Governing Body consists of 40 members—20 government representatives, 10 employers' representatives and 10 workers' representatives. Of the government seats, each of the 10 Member States of chief industrial importance (of which Canada is one) holds a permanent place and the other 10 government representatives are elected triennially by the Conference. The worker and employer members are elected by their groups every three years at the Conference. The Governing Body meets three times a year and has supervision over the work of the International Labour Office and the various Conferences and Committees, in addition to framing the budget and approving the agendas of the Conferences and meetings. Canada's representative on the Governing Body is the Deputy Minister of Labour for Canada.

The International Labour Office acts as the permanent secretariat of the ILO and as a world research and information centre and publishing house on all subjects concerned with working and living conditions. In the operational field it assists Member States by furnishing experts on manpower training and technical and other types of assistance. The ILO maintains branch offices in all parts of the world; the Canada Branch is located at 202 Queen Street, Ottawa.

The International Labour Conference is a world assembly for the consideration of labour and social problems. It meets annually and is attended by four delegates from each Member State (two representing the government, one representing the employers and one representing the workers) accompanied by technical advisers. The Conference formulates international standards concerning working and living conditions in the form of Conventions and Recommendations. A Convention, after adoption, must be considered by the competent authorities in each Member State with a view to possible ratification; however, each Member State decides whether or not to ratify any Convention, and only by ratification does it assume the obligation to bring its legislation in that field up to the standard set by the Convention. A Recommendation is less formal; it contains general principles for the guidance of governments in drafting legislation or in issuing administrative orders and is not subject to ratification by the Member States.

There have been 45 Sessions of the International Labour Conference, at which 116 Conventions and 115 Recommendations have been adopted, covering a wide range of subjects such as industrial relations, freedom of association, hours of work, weekly rest, holidays with pay, minimum wages, night work of women and young persons, industrial health and safety, workmen's compensation, conditions of work for seamen, dockers and fishermen, unemployment and health insurance, protection of migrant workers, equal

remuneration, discrimination, forced labour, radiation protection, and many other aspects of industrial and social problems. By Mar. 30, 1962, ratifications of Conventions by Member States numbered 2,501.

Canada has ratified 20 ILO Conventions, of which 12 concern maritime and dock labour. In Canada the provincial legislatures are the competent legislative authorities with jurisdiction over the subjects covered by most of the ILO Conventions and Recommendations. The Department of Labour, as the official link with the International Labour Organization, is responsible for forwarding to the ILO reports on ratified Conventions as well as periodical reports on many other industrial and social matters. Canada is represented at most of the ILO annual and special meetings, and accounts of the discussions and the decisions are regularly published in the *Labour Gazette*. The Department also keeps the provincial governments and the major employer and worker organizations informed of ILO activities.

CHAPTER XVII.—TRANSPORTATION

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

The physiographic and population characteristics of Canada present unusual difficulties from the standpoint of transportation. The country extends 4,000 miles from east to west and its main topographic barriers run in a north-south direction, so that sections of the country are cut off from one another by such water barriers as Cabot Strait and the Strait of Belle Isle separating the Island of Newfoundland from the mainland; by rough, rocky forest terrain such as the New Brunswick-Quebec border region and the areas north of Lakes Huron and Superior dividing the industrial region of Ontario and Quebec from the agricultural areas of the Prairie Provinces; and by the mountain barriers between the prairies and the Pacific Coast. Unevenly distributed along a narrow southern strip of Canada's vast area is its relatively small population of 18,238,000 (Census 1961). To such a country, with a population so dispersed and producing for export as well as for consumption in distant parts of the country itself, efficient and economical transportation facilities are necessities of existence.

The following special article gives some idea of the competitive problems that have faced the major agencies of transport during recent years of economic and technological change.

REVOLUTION IN CANADIAN TRANSPORTATION*

About a century ago Canada completed its first major railway—the Grand Trunk, extending from Sarnia through Toronto and Montreal to Portland, Maine. For the next seventy-five or eighty years the railways, which in the meantime had been extended across the country, continued to meet substantially all Canada's requirements for inland transport with one exception—sailing vessels and steamships served ports along the St. Lawrence

* Prepared by Dr. A. W. Currie, Professor of Political Economy, University of Toronto.

River and the Great Lakes. Although other modes of transport—passenger cars, buses, trucks, aircraft and, quite recently, pipelines—gradually came into use, the position of the railways was not greatly affected by competition until the 1930's and was not seriously challenged until the late 1940's.

At the end of World War II, railways were handling nearly three-quarters of the ton-miles (one ton carried one mile) of the freight moved between cities; fifteen years later their share was barely one-half. The proportion carried by water was roughly unchanged during this period, rising only from 22 p.c. to 25 p.c. On the other hand, highway carriers moved only 3.5 p.c. of the freight traffic in 1945 but almost 11 p.c. in 1960, and pipelines, which did not exist for long-distance transport in 1945, carried almost 14 p.c. in 1960. Although the amount of freight and express moved by air jumped as much as 17 p.c. per annum in some recent years, air cargo still totals less than 1 p.c. of all intercity ton-miles. Indeed, in 1960 less than one and one-half pounds were moved by air for every ton moved by rail.

It should be noted that the foregoing data are for intercity traffic only and do not include rural, intra-urban and suburban carriage such as the local delivery of farm produce, coal, fuel oil, bread, milk and merchandise of all sorts—a traffic that has expanded greatly in the past fifteen years. Also, the figures relate to quantity rather than revenue, a distinction that is important since much of the traffic of railways, inland steamships and pipelines is carried at low rates per ton-mile. Truckers and, particularly, airlines handle the more valuable goods, usually those of light weight in proportion to their bulk, and typically at fairly high rates per ton-mile.

The passenger traffic trend has also been away from the railways. Accurate statistics on passenger-miles are available for railways, airlines and the larger bus companies but no one knows exactly how many people ride in automobiles in addition to the driver or how far they go. However, through a complicated procedure, it is possible to make rough estimates of automobile passenger-miles (one passenger carried one mile) and such estimates show that in 1928 the distribution of total intercity passenger-miles was 38 p.c. to railways, 2 p.c. to buses and 60 p.c. to private automobiles. During the War when gasoline was rationed and new automobiles and repair parts were generally unavailable, the proportion of passengers carried by rail was, of course, much greater but by 1949, when the automotive industry had recovered from its wartime restrictions and air travel was beginning to enter the picture, the proportions were roughly 19, 11, 68 and 2 for trains, buses, automobiles and aircraft, respectively. Over the next few years the Canadian population became much more mobile and the number of passenger-miles increased steadily and rapidly, but almost every year railways and buses supplied fewer intercity passenger-miles than they had the year before, which, of course, resulted in a slump in their share of the total market. By 1962 the ratios were more like 6 p.c. for trains, 4 p.c. for buses, 82 p.c. for automobiles and 8 p.c. for aircraft. Not taken into account is the basically urban or rural traffic, such as trips by children in school buses, by suburban dwellers commuting to work in a city, by farmers taking their families to a nearby town to shop or to church, and by neighbours visiting each other. The gist of the matter is that, while many of the figures used are far from precise, it is quite evident that passengers have been deserting trains and even buses to travel for relatively short distances by automobile and for longer distances by air.

These shifts in patterns of travel and carriage of freight have raised a succession of problems. If the railway problem had consisted merely of a relative decline in their part of the market, the rail companies might have met their difficulties by running fewer trains and by abandoning unprofitable branches. However, abandonment of all passenger service over a line or of the line itself requires approval of the Board of Transport Commissioners and, as the Board carefully weighs the inconvenience to the public arising from such abandonment against the monetary savings of the carrier, complete withdrawal of service is a slow process. Moreover, sudden and wholesale elimination of service must always be avoided in the interests of public acceptance.

Railways are also handicapped in trying to raise tolls. Higher fares encourage travellers to use their own cars or to use commercial aircraft. Rates on grain exported from Western Canada—the so-called Crow's Nest Pass rates—are held down legally to the level

prevailing in 1899 and rates on many other kinds of freight traffic cannot be raised without driving more and more business to trucks. Alternatively, higher rates have a tendency to encourage local production, thus eliminating the need to move goods by rail or even by truck or water from distant sources of supply. Then, too, the Atlantic and Western Provinces allege that competition from trucks and inland steamships is so much greater in southern Ontario and Quebec than elsewhere in Canada that the burden of higher railway tolls is unfairly thrust upon other regions and certain kinds of traffic. Hence, the governments of all the provinces except Ontario and Quebec have vigorously opposed all post-war applications made by the railways to the Board of Transport Commissioners for increases in the general level of tolls. This has meant that tolls could not be raised until after long and expensive hearings before the Board and often before the Cabinet which is, by law, a court of appeal in such matters. Meanwhile, railways have suffered financially because of the lag between increases in wages and material prices on the one hand and freight rates on the other. In December 1958, however, an increase in tolls was permitted almost simultaneously with an increase in wage rates.

Since 1945, railways have also been going through a technological revolution, notably in the use of diesel locomotives, the construction of electronically operated freight yards, and the machine-processing of data for operational, analytical and accounting purposes. These innovations, plus the building of new lines to Chibougamau, Chisel Lake, and other new mining camps, necessitated the investment of vast sums of money. The new investments would have cut significantly the cost of moving passengers and freight and would have added to gross revenues if wage rates and material prices had remained at the level of, say, 1950. As things turned out, the savings from the technological advances were more than offset by the effects of postwar inflation and by competition. As a result, the Canadian National has been operating at a deficit and the Canadian Pacific has earned only about 3 p.c. per annum on its investment in rail property.

Broadly speaking, competitors of railways do not have to face the problem of eliminating redundant plant nor do they have any serious trouble in raising funds for modernization and extension of services. The Federal Government built the St. Lawrence Seaway and, although traffic through the Seaway has been below expectations, the benefits to inland shipping are already considerable. Pipelines for natural gas, petroleum and petroleum products were easily financed by the sale of bonds and stocks to the public. Although the Governments of Ontario and Canada lent money to the promoters of a natural gas pipeline north of Lake Superior, the loan was quickly repaid and would not have been necessary at all except that Canada wanted it to follow an all-Canadian route rather than a cheaper route through the United States.

Operators of motor transport vehicles are in an especially fortunate position. They may buy trucks, cars and buses second-hand or on the instalment plan but the really heavy capital investment in highway transport is in roads and these are provided by governments. The Federal Government has assisted the provinces in completing the Trans-Canada Highway and has built roads through the National Parks and resource development roads under the Roads-to-Resources program (see p. 784). Municipalities build local roads to give access to abutting property and provincial governments have the major responsibility for through-roads. They attempt to recover their costs from taxes on gasoline and diesel fuel as well as from the sale of licences for vehicles, drivers and chauffeurs. Through these taxes highway users pay about 50 p.c. of the cost of provincial highways in Newfoundland and Prince Edward Island, and roughly 90 p.c. in Ontario, Quebec and Saskatchewan. Many disputes have arisen over the apportionment of the total highway bill among heavy intercity trucks, local or light-weight trucks, private passenger cars, taxicabs, buses, motorcycles, and the general public. The latter gain from improved police and fire protection, better mail service, and good access to hospitals, markets and amusements at all seasons of the year. The important point, for present purposes, is that truckers have been able to enter the business cheaply. They pay for roads largely in proportion to their use of them. They are subject to provincial regulation as regards rates, admission to the industry, withdrawal

of unprofitable services, and adherence to schedules. The rulings vary greatly from one province to another but, in general, truckers are relatively free of regulation (as compared with the railways) except with regard to safety.

Truckers have other advantages over railways. They pick up goods at the warehouse of the shipper and deliver them at the factory, office or home of the consignee. This eliminates transfers to and from freight cars, saves time and expense and reduces claims for loss and damage. The unit of sale—a truckload or less—is smaller than a carload and many consignees prefer to receive goods in small lots. Truckers can usually give more frequent deliveries than railways. For short distances trucks are faster than trains, mainly because they do not have to contend with delays in terminals at origin and destination. For reasons too complicated to summarize, railway rates on valuable, light-weight products were originally much higher than those on bulky, low-valued goods so that, by under-cutting the high rates of railways, truckers are able to build up a profitable volume of business with comparatively little difficulty.

However, it should be noted that in the course of time truckers have lost some of their early advantages. The average investment of intercity truckers in land, buildings and equipment is \$50,000. Although many operators have only one or two trucks, a few have nearly 1,000 trucks, road tractors, trailers and semi-trailers each. Small trucks used for collection and local delivery are unsuited to long-distance haulage so that intercity freight often must be transferred between small and large vehicles. Accordingly, for some types of traffic, truckers have had to more or less duplicate the terminal operations of railways and thereby incur additional expense. Furthermore, in the face of truck competition, the railways have improved their door-to-door services and simplified their tariffs on such traffic. They have consolidated their less-than-carload and express services with the object of cutting costs and speeding delivery. Railway traffic moves faster than formerly because of diesel locomotives, block signals and modern yards. Railways have cut many rates and have refrained from raising others for fear of losing still more business to trucks. They have introduced 'agreed charges' whereby, with the approval of the Board of Transport Commissioners, they give roughly the same rates as truckers in return for an undertaking by the shipper to send an agreed proportion of his freight by rail. Because truckers are increasingly participating in moving bulky freight over fairly long distances, railways publish incentive rates; for instance, they quote lower rates per ton-mile when the car is heavily laden than when it is not filled to its maximum carrying capacity. Generally, in the movement of bulky freight in carloads over long distances, railways have much lower costs than trucks. Piggyback or trailer-on-flatcar service combines the advantages of carriage by rail and highway and has grown very rapidly in recent years.

Truckers can often compete on the basis of service even though their rates are somewhat higher than railway charges. This fact mainly accounts for the growth of private trucking. Instead of using railways or for-hire trucks, the shipper puts his own vehicle on the highway, thus owning both the truck and the goods it carries. By having his own employees make deliveries, he is often able to reduce loss and damage. More important, he can increase his sales by having his trucks arrive at the times most convenient for the consignee. His employees can see that stale goods are promptly disposed of and that his product is attractively displayed. On the other hand, private trucking is impracticable where a shipper's business is highly seasonal, where consignees are numerous and widely scattered, and where return loads are unobtainable but, in any event, commercial truckers face growing competition from both railways and shipper-owned vehicles.

In the carriage of passengers, private cars are by far the most commonly used medium. The risk of accident and the strain of driving are great and, unless every seat in the car is occupied, the cost per passenger-mile is higher than by common carrier. Yet people prefer to use their own cars. They enjoy the satisfaction of leaving when they wish, of stopping en route, and of relative privacy in transit. Private cars are primarily responsible for the problems of urban travel, including congestion, frayed tempers, the difficulty of finding parking space, the elimination of street cars (except in Toronto, which also has the nation's only subway), and the need for costly expressways. They carry most travellers between

cities up to distances of 200 miles or more, and convey tourists over trips of several thousand miles. Railways and buses have not been successful in meeting this competition, notwithstanding the provision of more comfortable coaches and speedier service, and various experiments in fares.

For long-distance travel, aircraft have great superiority in speed although this gain is partly offset by time lost in travel between the city centre and the airport at origin and destination. Airlines have overcome many of their early disabilities, such as non-adherence to schedules, risk of accident, air-sickness, and delays in making reservations and handling luggage, and their fares are often about the same as first-class fares by rail plus berth, meals and tips. Scheduled air services now link the metropolitan areas across Canada and abroad and, to a growing extent, connect the smaller cities. Isolated points in Northern Canada are also served by air and for many of them it is the only means of transport.

The emergence of so much competition has created innumerable problems for railway companies and for various segments of the industry. Furthermore, competition, as well as automation, dieselization and the abandonment of non-paying branches and passenger trains, has reduced the need for labour and raised difficulties in 'railway towns'. Railway companies contend that competition limits their ability to raise tolls and their capacity to pay higher wage rates. At the same time, rising interest rates makes it harder and more expensive to modernize plant. On the contrary, railway workers claim that their productivity has risen steadily as measured by ton-miles per man-hour and other indexes. They also contend that they should not be expected to work for lower wages than those prevailing for jobs of equivalent skill in industry generally. Finally, they claim that they are entitled to job security in the face of labour-saving innovations and abandonment of passenger trains and branch lines.

In 1958-61, Canada's transportation problem was investigated by a federal Royal Commission under the chairmanship of the Hon. C. P. McTague who was formerly Chief Justice of Ontario and, after his illness and resignation, under the chairmanship of M. A. MacPherson who had been legal counsel for Saskatchewan in all the postwar controversies over freight rates. Briefly, the Commission recommended: (1) A subsidy to cover the difference between railway costs and revenues for handling export grain in the West (under the Crow's Nest Pass Agreement of 1897, as amended in 1925 and interpreted by the Board of Transport Commissioners, such traffic is carried at the rates of 1899); this subsidy would amount to \$22,000,000 a year on the basis of the operating costs of 1958. (2) A subsidy of \$13,000,000 a year for five years and at a diminishing rate for each of the following ten years to cover losses on the operation of unprofitable branch lines which are to be abandoned except where no reasonably satisfactory alternative means of transport exists. (3) A subsidy of \$62,000,000 in 1961, declining in regular stages to \$12,400,000 in 1965, to meet operating deficits on the passenger services of the two major railways; the Commission would not allow any return on the investment in passenger-train cars, passenger stations, and the like. (4) Cancellation (except for Newfoundland) of the subsidy of 20 p.c. which has been paid since 1927 under the Maritime Freight Rates Act on local freight carried by rail within Canada east of Lévis, Que. (5) Retention of the current subsidy of 30 p.c. on the Maritime portion of the rate on traffic from the area east of Lévis to stations in Canada which are west thereof. (6) Cancellation of the so-called bridge subsidy of \$7,000,000 annually which has applied since 1951 to non-competitive traffic moving by rail between Eastern and Western Canada, north of Lake Superior. (7) Re-examination by the Federal Government of its policy of subsidizing the movement of feed grain from the Prairie Provinces to other parts of Canada.

In general, the Commission worked on the theory that competition rather than regulation should prevail. Therefore, it admonished the provinces not to regulate either rates or admission to the industry. (Oddly enough, in 1962 a Royal Commission appointed by Newfoundland reached exactly the opposite conclusion on this point.) The MacPherson Commission proposed, however, that the Board of Transport Commissioners should make sure that railways do not cut tolls below their out-of-pocket costs for handling any kind of traffic and thus compete unfairly with truckers. The Commission felt that, as far as

possible, carriers and shippers should pay the full cost of the facilities which they use and which are provided at public expense. It recognized that some railways, highways and air fields are needed for national defence, for the development of remote, newly discovered resources, and for the provision of passenger and freight services where no alternative means of transport exist. In these instances, the costs should be borne directly by the government and not by carriers or shippers. Finally, the Commission worked on the principle that government policy should be neutral in the sense that it should not favour one mode of transport above another. This means, among other things, that any subsidies continued under the Maritime Freight Rates Act should be paid to common carriers by water and highway as well as to railways.

For a variety of reasons, none of the recommendations of the MacPherson Commission have yet (August 1962) been incorporated in legislation but during the year ended Mar. 31, 1962 the railways received from the Federal Government \$50,000,000 as an interim payment related to the recommendations of the Commission, plus \$20,000,000 to be applied specifically to the reduction of freight rates. These sums were in addition to the continuing payments to railways under the Maritime Freight Rates Act and other older pieces of legislation.

PART I.—GOVERNMENT CONTROL OVER AGENCIES OF TRANSPORTATION

The Federal Government's control and regulation of transportation reflect to a considerable extent conditions that date back to the period when the railways possessed a virtual monopoly of transportation within the country. Although federal regulation was a direct outcome of such particular matters as the prevention of unjust discrimination in rates and charges resulting from monopoly conditions in the industry and the safety of transportation facilities and operating practices, yet the railways have been so involved in the public interest that their regulation has been extended to become the most comprehensive of any industry in Canada.

In the meantime, conditions in the transportation industry have been drastically altered by the increasing competition arising from the advance of highway transportation. Unlike the competition that existed between railways in early stages of their development, today's competition shows little indication of starting a trend toward consolidation and a return to semi-monopolistic conditions within the industry. Because so many shippers now provide their own transportation, it is evident that a large part of the present competition between common carriers has become a permanent feature of the transportation industry.

It is not surprising that regulations, which under monopoly conditions were not onerous to the railways or were purely nominal in their effect, are now alleged to have become increasingly restrictive and hampering under highly competitive conditions. Regulatory authorities are therefore faced with the problem of piecemeal revision of their regulations—retaining those where railway monopoly or near-monopoly conditions still make them necessary in the public interest, and relaxing those where competition can be relied on to protect the public in order to enable the railways to meet this competition more effectively. The emphasis has shifted from the regulation of monopoly to maintaining a balance between the several competing modes of transport. Indicative of this trend is the amendment to the Transport Act passed in 1955, which extends the freedom of the railways to make contract rates with shippers known as 'agreed charges'.

On Nov. 2, 1936, the amalgamation of the Department of Railways and Canals and the Department of Marine, together with the Civil Aviation Branch of the Department of National Defence to form the new Department of Transport brought under one control railways, canals, harbours, marine and shipping, civil aviation, radio and meteorology.

Road and highway development is mainly under provincial or municipal control or supervision. According to the judgment of the Judicial Committee of the Privy Council dated Feb. 22, 1954, jurisdiction over interprovincial and international highway transport

rests with the Federal Government. Federal and provincial representatives conferred at Ottawa in April 1954 on means of implementing that decision and on June 26, 1954, the Motor Vehicle Transport Act was passed by the Federal Parliament giving to all provinces, at their option, the authority to apply to interprovincial and international highway transport the same regulations respecting certificates of public convenience and necessity and rates as they apply to undertakings operating entirely within the province. This Act has since been proclaimed in seven provinces.

The Board of Transport Commissioners for Canada.—The Board of Transport Commissioners for Canada was created and initially named the Board of Railway Commissioners for Canada by the Railway Act 1903, and was given its present name by the Transport Act 1938. It was organized on Feb. 1, 1904, and succeeded to all the powers and duties of its predecessor, the Railway Committee of the Privy Council. It was also given additional powers and duties which have been greatly enlarged since that date. When organized, the membership of the Board consisted of a Chief Commissioner, a Deputy Chief Commissioner and one Commissioner. In 1908 an Assistant Chief Commissioner and two other Commissioners were added. The Board is a statutory court of record, so constituted by the Railway Act and recognized as such by other courts, but it also has extensive regulative and administrative powers.

The great majority of applications and complaints to the Board are disposed of without hearing in open court, but public hearings are held in various places throughout Canada as the Board sees fit, particularly to suit the convenience of the parties and avoid expense to them. Evidence at public hearings is given under oath and interested parties appear personally or by counsel or representatives. The finding or determination of the Board upon any question of fact within its jurisdiction is binding and conclusive and no order or decision may be questioned or reviewed except on appeal to the Supreme Court of Canada upon a question of law or a question of jurisdiction with leave of a judge of that Court, or by the Governor in Council.* Two Commissioners are a quorum or 'panel' for the hearing of a case and it is not unusual for two panels to be sitting at the same time on different cases.

The Board has jurisdiction under more than a score of Acts of Parliament, including jurisdiction, under the Railway Act and the Transport Act, over transportation by railway and by inland water, and over communication by telephone and telegraph.

Under the Railway Act its jurisdiction is, stated generally, in respect of construction, maintenance and operation of railways that are subject to the legislative authority of the Parliament of Canada, including matters of engineering, location of lines, crossings and crossing protection, safety of train operation, operating rules, investigation of accidents, accommodation for traffic and facilities for service, abandonment of operation, freight and passenger rates, and uniformity of railway accounting. The Board also has certain jurisdiction over telephones and telegraphs, including regulation of the telephone tolls of The Bell Telephone Company of Canada, the British Columbia Telephone Company, the Bonaventure and Gaspe Telephone Company and the Yellowknife Telephone Company, over tolls for express traffic, and tolls for the use of international bridges and tunnels.

The Board has jurisdiction to inquire into, hear and determine any application by any party interested who complains that any company or person has violated or failed to comply with the Railway Act or a Special Act or any order made thereunder, or who requests the Board to make any order or give any direction, leave, sanction or approval that, by law, it is authorized to make or give or with respect to any matter, act or thing that by the Railway Act or Special Act is prohibited, sanctioned or required to be done. It has power to make orders and regulations generally for carrying the Railway Act into effect and for exercising jurisdiction conferred on the Board by any other Act.

* The Board's judgments are reported in *Canadian Railway Cases* and *Canadian Railway and Transport Cases*, and its judgments, orders, rulings and regulations are published by the Queen's Printer, Ottawa, in what is known as *J.O.R. & R.*

Regulation of railway freight and passenger rates is one of the Board's principal tasks. Except for certain statutory rates, it has power "to fix, determine and enforce just and reasonable rates, and to change and alter rates as changing conditions or cost of transportation may from time to time require"; it may disallow any tariff that it considers to be unjust or unreasonable or contrary to any provision of the Railway Act; it may prescribe other tolls in lieu of the tolls disallowed, or require the railway company to substitute a tariff satisfactory to the Board. Since the end of World War II there has been a succession of applications for authority to make general freight rate increases and general telephone rate increases.

A review of transport regulation was undertaken by the Royal Commission on Transportation, under the chairmanship of the Hon. W. F. A. Turgeon, which held extensive hearings in 1949-50 and issued its Report in 1951. (See 1952-53 Year Book, p. 741.) Certain of its recommendations, including the following, were incorporated into the Railway Act by amendments made in 1951: the equalization of freight rates; the requirement that, when transcontinental competitive freight rates are published, the corresponding rates to intermediate points shall not be more than one-third greater than the former; the payment by the Government of Canada of the cost of maintaining the so-called 'bridge' lines of the transcontinental railway systems in Ontario (between Sudbury, Capreol and Cochrane, and between Port Arthur and Armstrong) up to the amount of \$7,000,000 annually, the amounts so received by the railways to be applied to reductions in freight rates between Eastern and Western Canada over the trackage referred to; and the requirement of a uniform classification of accounts to be prescribed by the Board of Transport Commissioners for the Canadian Pacific Railway and the Canadian National Railways. Pursuant to the amendments, a uniform scale of mileage class rates has been prescribed by the Board and equalization of commodity rates is being proceeded with. The Board has also prescribed a uniform classification and system of accounts for railways and has approved a new freight classification.

Under the Transport Act, the Board entertains applications for licences for ships to transport goods or passengers for hire or reward between places in Canada on the Great Lakes and the Mackenzie and Yukon Rivers, except goods in bulk on waters other than the Mackenzie River. Before granting a licence the Board must be satisfied that public convenience and necessity require such transport. The Board also has regulative powers over tolls for such transport.

'Agreed charges' between shippers and carriers, authorized by the Transport Act, were also reviewed by the Hon. W. F. A. Turgeon in 1955 and his recommendations were implemented in amendments to that Act in 1955. Under the amendments, an agreement for an agreed charge shall be executed in tariff form and a duplicate original shall be filed with the Board within seven days after the making of the agreement; the agreed charge will take effect twenty days after the filing without necessity of the Board's approval of the charge. The Board continues to have power to fix a charge for a shipper who is unjustly discriminated against by an agreed charge and it also has power to vary or cancel an agreed charge referred to it by the Minister of Transport or the Governor in Council for investigation.

During the year 1961, a total of 3,156 applications were submitted to the Board under the provisions of the Railway Act, the Transport Act, the Maritimes Freight Rates Act, and other legislation under the Board's jurisdiction; 3,279 Orders and 11 General Orders were issued.

The Board, shortly after the interim freight rate increase of 17 p.c. was authorized in November 1958, required the railways to specify, before Apr. 10, 1959, the amount of supplementary relief sought. But before that date, the Government announced that no further general increases would be allowed for a period of one year pending the findings of a Royal Commission to be established to inquire into the railway rate structure and other matters affecting railway transportation. The Royal Commission was appointed May 13, 1959 with the Hon. C. P. McTague named as chairman (later succeeded by M. A.

MacPherson), and conducted hearings across Canada, receiving submissions from the railways and all interested parties. Volume I of its report was submitted in March 1961 and Volume II in December 1961; another volume will follow. (See also pp. 757-758.)

On July 8, 1959, Parliament passed the Freight Rates Reduction Act designed as a relief measure for shippers. The Act provided a fund of \$20,000,000 to permit a reduction in class and commodity rates (other than competitive rates) on Canadian railways for a period of one year to Aug. 1, 1960. In compliance with the Act, the Board of Transport Commissioners ordered the substitution of an increase of 10 p.c. for the permissive increase of 17 p.c. A further reduction, substituting an increase of 8 p.c. in lieu of 10 p.c., was ordered by the Board, effective May 1960. By two later amendments, the Freight Rates Reduction Act was extended first to Apr. 30, 1961 and then to Apr. 30, 1962. The authorized expenditure was raised from \$20,000,000 to \$35,000,000 and then to \$55,000,000. The reduced rates, as ordered by the Board in May 1960, have continued in effect. As at Feb. 12, 1962, and for the period Aug. 1, 1959 to Dec. 31, 1961, the Board had certified \$44,989,453 for payment to companies under authority of the Freight Rates Reduction Act.

On July 13, 1961, Parliament passed Appropriation Act No. 4-61 which included tenths of \$50,000,000 in respect of Vote No. 590 of the Supplementary Estimates for the year ended Mar. 31, 1962; the remainder was included in Appropriation Act No. 5-61, passed on Sept. 28, 1961. Vote No. 590 provided for "Interim payments, related to recommendations of the Royal Commission on Railway Problems pending its complete report, to Companies as defined in the Freight Rates Reduction Act of an aggregate amount in respect of the calendar year 1961 of \$50,000,000". It also provided that the Board determine the method of allocation, and that payment be made to such Companies as compensation for the maintenance of their rates on freight traffic at reduced levels as provided for in the Freight Rates Reduction Act. As of Feb. 12, 1962, payments totalling \$49,850,000 had been made under Board Orders, the remainder of the Vote to be allocated after the claims under the Freight Rates Reduction Act were received for the calendar year 1961.

The Air Transport Board.—The Air Transport Board was established in September 1944 by amendment to the Aeronautics Act. Subsequent amendments to the Act were made in 1945, 1950 and 1952. The Board has three members including the Chairman, and the staff is comprised of a Senior Adviser; a Legal Branch; an Operations Branch which includes the Traffic Division, Operations Analyst, Special Traffic Adviser, International Relations Division, and the Licensing and Inspection Division; an Economic and Accounting Branch which includes the Economics Division, Audit Division and Financial Analyst; and a Secretary's Branch which includes the Administrative Division. In addition, a small staff is located in Montreal to service the Senior Canadian Representative on the Council of the International Civil Aviation Organization.

The Board is responsible for the economic regulation of commercial air services in Canada and is also required to advise the Minister of Transport in the exercise of his duties and powers in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad and to foreign air services operating into and out of Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. As provided by the Act, the Board issues Regulations, approved by the Governor in Council, dealing with the classification of air carriers and commercial air services, applications for licences to operate commercial air services, accounts, records and reports, ownership, transfers, consolidations, mergers and leases of commercial air services, traffic tolls and tariffs, and other related matters. Detailed regulatory instructions are issued by the Board in the form of General Orders, relating to all air services or groups of air services; Board Orders relating to individual air services; and Rules and Circulars for general guidance and information. Financial and operating statistics are collected under authority of the Board's Regulations.

Regional route operations are under current review by the Board by way of public hearings throughout Canada. The Board also has under study the potential for and requirements of increased and improved air services into the Canadian North. Continued attention is being given to the question of uniformity in the rules governing the filing and application of tariffs in both the fixed and rotating wing services. The rules governing applications for licence procedures are also being examined for improved processing methods.

In the field of international aviation, the Board continues to take an active part in the work of the International Civil Aviation Organization, and to undertake bilateral negotiations for the exchange of traffic rights when appropriate. At present, Trans-Canada Air Lines, Canadian Pacific Air Lines Limited and TransAir Limited are Canada's designated international scheduled carriers.

The Canadian Maritime Commission.—The Canadian Maritime Commission Act passed in 1947 (RSC 1952, c. 38) constitutes the Canadian Maritime Commission a body corporate exercising its powers as an agent of Her Majesty. The Commission is established as a separate department of the Government reporting to Parliament through the Minister of Transport. The Commission is charged by Sect. 6 of the Act with the following responsibility:—

“The Commission shall consider and recommend to the Minister from time to time such policies and measures as it considers necessary for the operation, maintenance, manning and development of a merchant marine and a ship-building and ship-repairing industry commensurate with Canadian maritime needs.”

For the discharge of this responsibility the Commission is authorized to examine into, ascertain and keep records of all phases of ship operation. In addition, the Commission is specifically directed by paragraph (b) of Sect. 8 to:—

“administer, in accordance with regulations of the Governor in Council, any steamship subventions voted by Parliament.”

On May 12, 1961, the Minister of Transport announced in the House of Commons a national maritime policy designed to encourage the construction and operation of ships in Canada and, as well, provide assistance to Canadian fishermen. To this end a capital subsidy amounting to 35 p.c. of the cost will be paid by the Government toward the construction of self-propelled ships in Canadian shipyards, to be increased to 40 p.c. for work done between May 12, 1961 and Mar. 31, 1963. For steel fishing trawlers the assistance will be 50 p.c. of the cost in cases where the new trawler will replace an old vessel withdrawn from service. Capital grants toward the construction of small wooden fishing vessels are also to be increased. Payments of capital subsidy are made under regulations of the Governor in Council. About \$2,000,000 was expended during the first fiscal year but this figure cannot be taken as a guide to future yearly expenditures because part of the subsidy is to be applied toward the construction of large ships which require from a year to a year and a half to complete.

Subsidies have been paid by the Government for the maintenance of essential steamship services since the latter part of the nineteenth century. Included in this program were subsidies for domestic services and, as well, mail and operating subventions for overseas services. At the outbreak of World War II all subventions except those for domestic services were suspended and since the end of the War subsidies for ocean-going ships have been paid on only two occasions. On one occasion the purpose was for the preservation of a water transportation link with Australia and New Zealand but this was discontinued in 1952 when the *Aorangi* was withdrawn from service for demolition; the other occasion was a special one-year subsidy for Canadian ocean-going ships generally during a period of depressed freight rates in 1950.

The National Energy Board.—The National Energy Act (SC 1959, c. 46) proclaimed Nov. 1, 1959, provided for the establishment of a five-member Board charged with the duty of assuring the best use of energy resources in Canada. In the performance of this function, the Board is responsible for the regulation of the construction and opera-

tion of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipeline, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. During 1960 the most prominent activity of the Board was the processing and disposition of the applications for licences to export large quantities of natural gas which awaited the Board upon its creation in 1959. In 1961, its major activities were concerned with the implementation of the national oil policy and the processing of applications for renewal or issuance of licences to export electric power and energy. These activities are covered in more detail in the Foreign Trade Chapter of this volume (see Index).

PART II.—RAIL TRANSPORT*

Section 1.—Railways

Since Confederation the railways of Canada have been the principal transport facility throughout, and beyond, the nation. The two great national systems, supplemented by a recently completed north-south line on the West Coast and a number of regional independent railways, are the only carriers able to transport large volumes of freight at low cost in all weather by continuous passage over Canadian transcontinental routes. Though highway and air competition is increasing, the railways still retain their primary position in the freight transport field.

The two national railway companies control a wide variety of Canadian and international transport and communication services. The government-owned Canadian National Railway System is the country's largest public utility and operates the greatest length of trackage in Canada. In addition, it operates a highway service, a fleet of coastal and ocean-going steamships, a national telegraph system connecting the principal points of Canada with other parts of the world, an extensive express service in Canada and abroad, a chain of large hotels and resorts, and a scheduled air service connecting all major cities across the country and Canadian with other North American and European points. Its chief competitor, the Canadian Pacific Railway Company, is a joint-stock corporation operating a transcontinental railway supported by a national telegraph system with connections throughout the world, a large fleet of inland, coastal and ocean-going vessels, a chain of year-round and resort hotels, a domestic airline servicing points in British Columbia, Alberta and Yukon Territory, a transpacific airline service to the Orient and the Antipodes, air services to Mexico, Peru, Chile and Argentina, a transpolar air route connecting Vancouver and Amsterdam, a transatlantic service to Portugal, Spain and Italy, and a limited (one flight daily each way) transcontinental air service between Vancouver and Montreal. Also included in the company's operations are a world-wide express service and a domestic truck and bus network.

The Pacific Great Eastern Railway, owned by the British Columbia Government, operates over a 789.5-mile route from North Vancouver to Fort St. John in the Peace River area of northeastern British Columbia, with a branch line from Chetwynd to Dawson Creek. The completion in 1958 of the northern extension of this line opened up to development the vast interior of the province and brought to an end the largest railway construction job undertaken in North America for two decades. With the completion in May 1959 of the last link in the microwave system, the PGE became the first railway on the Continent to be operated entirely by means of radio communication.

The statistics of Subsections 1 to 3 of this Section cover the combined railway facilities of all companies operating in Canada, including intercity freight and passenger services of electric railway companies. Details relating to the Canadian National Railway System are dealt with separately in Subsection 4. A special article covering the consolidation and organization of the CNR appears in the 1955 Year Book at pp. 840-847.

* Revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics; more detailed information is given in the annual reports of the Division.

Subsection 1.—Milage and Equipment

Construction was begun in 1835 on the first railway in Canada—the short link of 14.5 miles between Laprairie and St. Johns, Que.—but only 66 miles were in operation by 1850. The first great period of construction was in the 1850's when the Grand Trunk and the Great Western Railways were built as well as numerous smaller lines. The building of the Intercolonial and the Canadian Pacific railways contributed to another period of rapid expansion in the 1870's and 1880's. In the last period of extensive railway building (1900-17), the Grand Trunk Pacific, National Transcontinental and Canadian Northern Railways were constructed.

Only a gradual increase has taken place in first main track milage since the 1920's. Recently, however, the development of a number of large industrial projects in districts far removed from transport facilities has necessitated the building of branch lines. Those completed up to 1956 are listed in the 1957-58 Year Book, p. 815, and those completed in 1957 and 1958 in the 1959 Year Book, p. 775. During 1959 the eastern section of the Chibougamau branch line constructed by the CNR from St. Félicien to Cache Lake in Quebec, a distance of 133 miles, was officially placed in service; the western section of this line, from Beauville to Chibougamau, was completed in 1957, opening up mineral-rich areas and linking them with the industrial centres of the province. Another branch of this line, to serve Mattagami Lake mines in northwestern Quebec, will be constructed during 1961-62; it will be 60 miles in length and cost an estimated \$9,660,000. Also, as agent of the Federal Government, the CNR is carrying out a branch line location survey from the vicinity of Grimshaw, Alta., on the Northern Alberta Railways, to Great Slave Lake, a distance of about 460 miles. The 52-mile line from Optic Lake to Chisel Lake in Manitoba, built at a cost of \$8,800,000 to connect a base metal mining development with the smelter at Flin Flon, was completed in September 1960.

While new construction has added considerably to first main track milage placed in operation in the past few years, other lines have been abandoned because they have become unprofitable. Thus, new milage is not reflected in the totals shown in Table 1.

1.—Railway Track Milage Operated, 1900-60

NOTE.—Figures of total milage of single track operated for 1835-1900 are given in the 1941 Year Book, p. 546; for 1911-14 in the 1953 edition, p. 78; for 1915-49 in the 1955 edition, p. 80; and for 1926-49 in the 1956 edition, p. 792.

FIRST MAIN TRACK MILAGE		TRACK MILAGE BY AREA AND TYPE				
Year	Miles in Operation	Area and Type of Track	1957	1958	1959	1960
	No.		No.	No.	No.	No.
1835	17,657	First Main—				
1845	21,487	Newfoundland.....	934	934	934	934
1910	21,711	Prince Edward Island.....	285	285	285	284
1915	23,882	Nova Scotia.....	1,370	1,336	1,333	1,316
1920	28,805	New Brunswick.....	1,818	1,818	1,818	1,783
1925	30,157	Quebec.....	5,096	5,096	5,223	5,228
1930	32,017	Ontario.....	10,513	10,467	10,421	10,245
1935	32,919	Manitoba.....	5,005	5,004	5,004	5,056
1940	32,545	Saskatchewan.....	8,721	8,721	8,721	8,721
1945	32,532	Alberta.....	5,680	5,679	5,680	5,679
1950	31,579	British Columbia.....	4,071	4,388	4,388	4,386
1951	32,056	Yankee.....	58	58	58	58
1952	32,056	United States.....	339	339	339	339
1953	32,100					
1954	32,102	Totals, First Main.....	43,890	44,125	44,209	44,029
1955	32,144	Second main.....	2,471	2,444	2,350	2,243
1956	32,652	Other main.....	—	—	—	45
1957	33,800	Industrial.....	1,208	1,216	1,219	1,248
1958	34,125	Yard and sidings.....	11,528	11,534	11,616	11,628
1959	34,200					
1960	34,200	Grand Totals.....	59,097²	59,319³	59,394⁴	59,193⁴

¹ Newfoundland included from 1950.

² Includes 45 miles of joint track.

³ Excludes 51 miles of

joint track.

⁴ Excludes 52 miles of joint track.

Rolling-Stock.—Although the figures of Table 2 show the number of the different types of rolling-stock in operation at Dec. 31 of the years 1954 to 1960, they do not by any means give a complete picture of rolling-stock capacity for service. Each year hundreds of units, particularly freight cars, are retired and replaced by more efficient equipment, much of it specially designed and engineered for specific hauling jobs. Improvement in the efficiency of car use is also a factor that may reduce the amount of equipment required. Between 1954 and 1960 the average capacity of box cars increased from 45.5 tons to 47.0 tons, of gondola cars from 64.2 tons to 65.7 tons, flat cars from 44.6 tons to 48.0 tons, hopper cars from 64.4 tons to 66.9 tons, ore cars from 58.3 tons to 79.8 tons and of all freight cars from 48.1 tons to 51.4 tons. The average tractive power of locomotives advanced during the same period from 42,622 lb. to 55,791 lb. Table 2 shows the increasing number of diesel locomotives in service. The Canadian National Railways completed its dieselization program during 1960, retiring all remaining steam units from service, while the Canadian Pacific Railway Company had replaced all but 364 steam locomotives.

2.—Railway Rolling-Stock in Operation as at Dec. 31, 1954-60

Type	1954	1955	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.	No.	No.
Locomotives	4,771	4,714	4,790	4,821	4,823	4,720	3,752
Steam.....							
Oil burning.....	2,871	2,521	2,228	1,857	1,483	1,143	335
Coal burning.....	715	704	621	537	477	371	68
Diesel electric.....	1,152	1,455	1,895	2,372	2,799	3,155	3,308
Electric.....	33	33	46	55	64	51	41
Passenger Cars	6,648	6,574	6,220	5,942	5,733	5,456	5,119
Coach.....	2,133	2,058	1,799	1,597	1,486	1,409	1,342
Combination.....	323	325	340	343	328	182	172
Colonist.....	254	228	178	136	124	96	88
Dining.....	196	201	186	183	174	159	149
Parlour.....	174	172	173	167	162	143	137
Sleeping.....	956	969	925	879	900	919	861
Baggage, express and postal.....	2,418	2,433	2,404	2,398	2,336	2,353	2,218
Self-propelled.....	63	75	90	129	139	128	111
Other.....	131	115	112	110	84	67	41
Freight Cars	189,351	185,956	191,974	197,907	196,893	194,512	191,553
Automobile.....	7,439	7,406	6,370	6,733	6,722	7,270	7,249
Ballast.....	2,245	2,378	2,156	2,646	2,708	3,140	3,128
Box.....	118,770	114,814	118,353	121,346	117,604	114,181	111,217
Flat.....	11,782	12,037	11,876	11,975	12,058	12,270	12,645
Gondola.....	18,469	18,582	19,052	19,904	20,522	20,428	20,310
Hopper.....	12,129	12,247	12,870	13,788	15,493	15,601	15,578
Ore.....	2,555	2,559	5,465	5,967	6,004	5,984	5,930
Refrigerator.....	9,583	9,735	9,906	10,022	10,184	10,155	10,076
Stock.....	5,972	5,776	5,501	5,141	5,195	5,025	4,917
Tank.....	363	378	389	384	382	455	472
Other.....	44	34	16	1	21	23	31
Privately Owned Cars ¹	—	—	—	—	—	4,853	5,031
Flat.....	—	—	—	—	—	7	7
Gondola.....	—	—	—	—	—	—	2
Hopper.....	—	—	—	—	—	37	23
Tank.....	—	—	—	—	—	4,809	4,999

¹ Includes one gasoline locomotive.

² Includes 13 cars not specified as to type.

³ Includes 20 cars

not specified as to type. ⁴ Includes those of non-rail industrial firms such as oil, chemical and railway car leasing companies which furnish freight cars to, or on behalf of, any railway line.

Subsection 2.—Finances

The tables in this Subsection give information on capital liability and capital investment, earnings, operating expenses, employees and their earnings and government aid to all railways.* Financial statistics of government-owned railways are given separately and in

* Statistics for individual railways are given in DBS annual report *Railway Transport*, published in six parts (Catalogue Nos. 52-207—52-212).

detail in Subsection 4. A Uniform Classification of Accounts for common carriers became effective for the Canadian National and the Canadian Pacific railways on Jan. 1, 1956, and for all other common carrier railways on Jan. 1, 1957. In transportation statistics a distinction is made between expenditures and expenses. In this Subsection, the term 'expenses' is used as defined in the Uniform Classification of Accounts and refers to the expenses of furnishing rail transportation service and of operations incident thereto, including maintenance and depreciation of the plant used in such service.

Capital Liability and Investment.—The capital liability of railways operating in Canada for the years 1941 to 1960 is shown in Table 3. The increase of \$178,662,014 in 1960 over 1959 compares with an increase in investment in road and equipment property of \$107,374,071 as shown in Table 4.

3.—Capital Liability of Railways, 1941-60

NOTE.—Figures for 1876-1925 are given in the 1927-28 Year Book, p. 649, and those for 1926-40 in the 1947 edition, p. 662.

(Exclusive of Canadian railway capital owned by Canadian railways)

Year	Stocks	Funded Debt	Total	Year	Stocks	Funded Debt	Total
	\$	\$	\$		\$	\$	\$
1941.....	1,607,545,099	1,609,942,875	3,207,488,564	1951.....	1,646,205,772	1,925,488,160	3,571,693,932 ¹
1942.....	1,578,284,745	1,700,579,271	3,278,864,015	1952.....	2,106,309,060	1,308,899,612	3,715,208,672 ¹
1943.....	1,614,933,131	1,741,603,036	3,356,536,167	1953.....	2,122,692,856	1,439,063,402	3,861,756,258 ¹
1944.....	1,636,064,822	1,707,811,579	3,343,876,408	1954.....	2,499,778,848	1,475,815,267	3,975,594,115 ¹
1945.....	1,631,973,055	1,701,786,869	3,333,759,924	1955.....	2,543,465,586	1,565,109,030	4,108,574,616 ¹
1946.....	1,624,757,799	1,665,844,138	3,290,597,847	1956.....	2,572,487,313	1,612,796,551	4,185,193,864 ¹
1947.....	1,623,607,219	1,685,910,672	3,308,617,891	1957.....	2,565,559,683	1,761,660,210	4,330,219,893 ¹
1948.....	1,578,057,474	1,472,282,030	3,250,339,504	1958.....	2,646,659,697	1,953,114,826	4,599,774,523 ¹
1949.....	1,576,744,292	1,692,898,968	3,269,643,260	1959.....	2,666,062,269	2,122,675,213	4,791,737,482 ¹
1950.....	1,649,492,688	1,829,946,222	3,475,808,310 ¹	1960.....	2,725,827,684	2,244,571,812	4,970,399,496 ¹

¹ Exclusive of approximately \$40,000,000 railway debt in Newfoundland assumed in 1949.

² Affected

by readjustment in the capital structure of the CNR (see p. 773).

4.—Capital Invested in Railway Road and Equipment Property, 1956-60

Investment	1956 ¹	1957 ¹	1958 ¹	1959 ¹	1960
	\$	\$	\$	\$	\$
Road.....	280,648,789	226,971,459	174,390,869	134,823,880	113,587,736
Equipment.....	148,235,337	189,383,255	133,068,199	78,487,442	Cr. 12,920,826
General.....	7,871,446	Cr. 77,635,769	Cr. 1,673,544	Cr. 816,428	Cr. 35,546
Undistributed.....	12,156,689	16,761,171	2,253,817	42,668,998	6,742,707
CNR non-rail property....	6,245,238	6,573,570	6,017,011	1,861,030	6,538,741
CPR " "	5,790,522	9,943,881	Cr. 3,825,030	56,878,761	122,830
Other " "	180,929	243,780	61,836	3,929,207	81,138
Totals.....	448,912,261	355,480,116	308,039,341	255,163,892	107,374,071
Cumulative Investment to Dec. 31.....	5,707,460,087 ¹	6,074,129,038 ²	6,382,168,379	6,637,332,271	6,744,706,342

¹ A restatement of investment totals by railways adopting the new Uniform Classification of Accounts in 1956 and year-to-date investments in non-rail property, which were not previously available, has increased the cumulative figure by \$431,268,776.

² Includes investments totalling \$11,188,835 of the British Columbia Electric Railway which reported for the first time in the railway transport series.

Revenues and Expenses.—The ratio of expenses to revenues of railways operating in Canada was 96.34 p.c. in 1960 compared with 89.80 p.c. ten years previously; the high for the period 1951-60 was 97.30 p.c. recorded in 1958. The trend of both revenues and expenses was generally upward during the period, revenues increasing by 5.8 p.c. and expenses by 13.5 p.c. The all-time high point for operating revenues was reached in 1956. Because outlay increased more rapidly than income during the ten years, the net operating revenue per mile of line dropped from \$2,585 in 1951 to \$936 in 1960, although the lowest figure during the period was recorded in 1958 at \$696.

5.—Operating Revenues and Expenses of Railways, 1951-60

NOTE.—Operating revenues and expenses from 1875 are given in previous editions of the Year Book beginning with the 1916-17 edition.

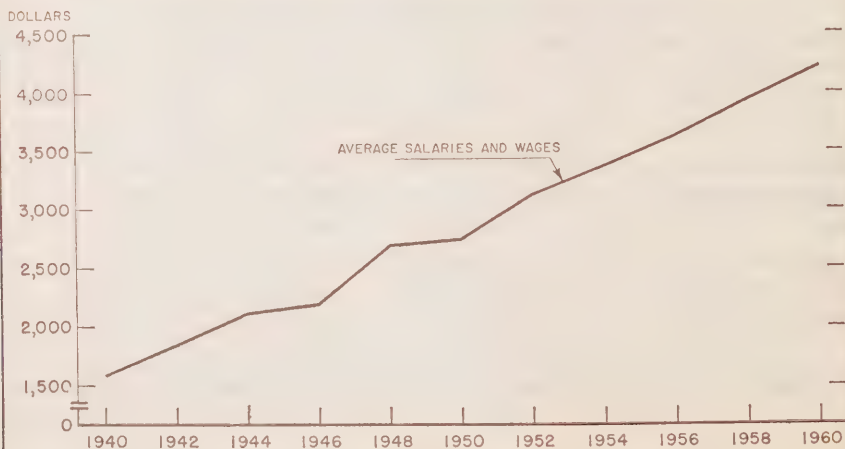
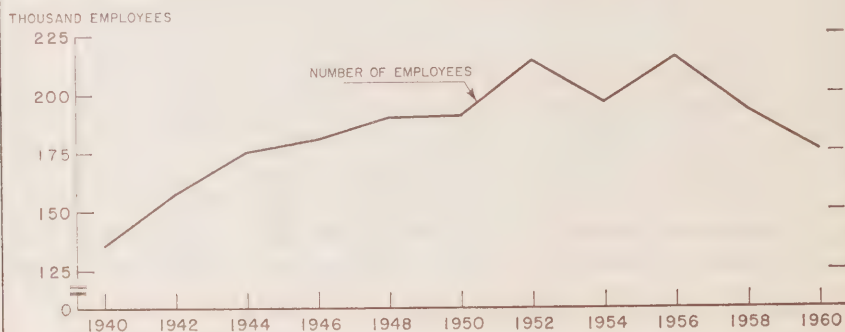
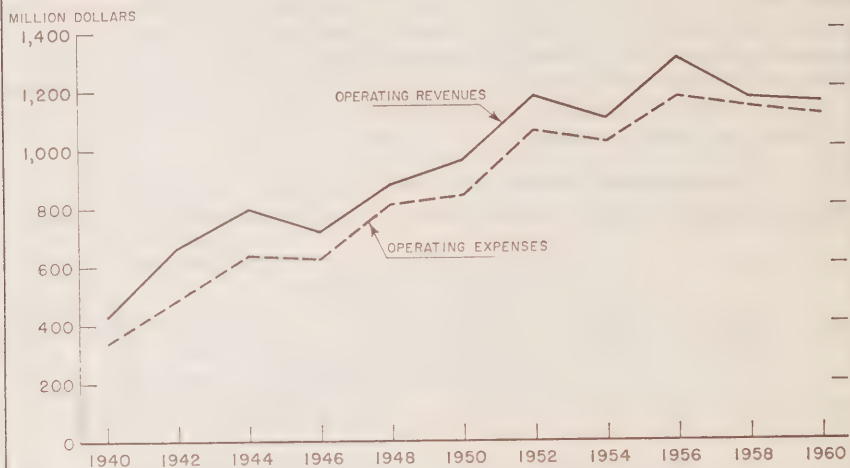
Year	Total Operating Revenues	Total Operating Expenses	Ratio of Operating Expenses to Operating Revenues	Per Mile of Line			Freight-Train Revenue per Freight-Train Mile	Passenger-Train Revenue per Passenger-Train Mile
				Operating Revenues	Operating Expenses	Net Operating Revenues		
	\$	\$	p.c.	\$	\$	\$	\$	\$
1951.....	1,088,583,789	977,577,062 ¹	89.80	25,348	22,763	2,585	10.05	3.36
1952.....	1,172,158,665	1,057,186,304 ¹	90.19	27,272	24,597	2,675	10.56	3.50
1953.....	1,205,935,414	1,100,393,836 ¹	91.25	28,020	25,567	2,453	11.43	3.53
1954.....	1,095,440,918	1,019,534,989 ¹	93.07	25,402	23,642	1,760	11.58	3.44
1955.....	1,198,351,601	1,048,564,681 ¹	87.50	26,876	23,517	3,359	12.21	3.60
1956.....	1,300,623,923	1,171,338,574	90.06	29,047	26,159	2,888	12.75	3.16
1957.....	1,263,147,930	1,203,530,146	95.28	28,171	26,841	1,330	13.85	3.30
1958.....	1,163,735,417	1,132,277,504	97.30	25,766	25,070	696	14.51	3.11
1959.....	1,224,567,928	1,166,306,724	95.24	27,093	25,804	1,289	15.48	3.29
1960.....	1,151,655,456	1,109,470,426	96.34	25,544	24,608	936	15.54	3.46

¹ Excludes equipment rents, joint facility rents and tax accruals.

6.—Distribution of Operating Expenses of Railways, 1958-60

Item	1958		1959		1960	
	\$	p.c.	\$	p.c.	\$	p.c.
Road maintenance.....	248,593,455	21.9	259,958,839	22.3	243,990,846	22.0
Equipment maintenance.....	253,744,614	22.4	256,778,520	22.0	249,473,225	22.5
Traffic.....	27,208,205	2.4	29,140,473	2.5	28,866,434	2.6
Transportation.....	440,116,687	38.9	443,292,012	38.0	424,924,203	38.3
General and miscellaneous.....	110,677,500	9.8	113,955,685	9.8	103,370,511	9.3
Rents and taxes.....	51,937,043	4.6	63,181,195	5.4	58,845,207	5.3
Totals.....	1,132,277,504	100.0	1,166,306,724	100.0	1,109,470,426	100.0

REVENUES AND EXPENSES, EMPLOYEES AND EARNINGS FOR RAILWAYS OPERATING IN CANADA, 1940-60



Employment and Salaries and Wages.—Railway employment in 1960 declined 7 p.c. from employment in the previous year, 18 p.c. from that in 1956 and was 14 p.c. lower than the average for the ten-year period 1951-60. Compared with 1951, equipment maintenance employees on hourly rates in 1960 worked 12 p.c. fewer average hours but their wages per hour were 65 p.c. higher. The average number of hours worked by transportation employees decreased 17 p.c. but their pay per hour was about 60 p.c. higher. Since 1956, statistics have been reported in accordance with the revised "Canadian Classification of Railway Employees and Their Compensation", which became effective Jan. 1, 1956.

7.—Railway Employees and Their Earnings, 1951-60

NOTE.—Figures include employees and wages for 'outside' operations amounting to from 3 to 6 p.c. of total employees and from 2 to 5 p.c. of total salaries and wages. Figures for 1912-39 are given in the 1941 Year Book, p. 551; for 1940-49 in the 1951 edition, p. 723; and for 1950 in the 1961 edition, p. 785.

Year	Employees	Total Salaries and Wages	Average Salaries and Wages	Ratio of Total Payroll (charged to operating expenses) to—	
				Operating Revenues	Operating Expenses
	No.	\$	\$	p.c.	p.c.
1951.....	204,025	624,682,754	3,062	52.0	58.0
1952.....	214,143	660,457,962	3,126	52.1	57.7
1953.....	211,951	724,077,594	3,416	53.4	58.6
1954.....	196,307	681,820,774	3,371	54.3	58.3
1955.....	195,459	674,875,767	3,453	50.2	57.4
1956.....	215,324 ¹	780,135,918	3,623	50.6	55.9
1957.....	212,426 ¹	791,529,117	3,726	51.4	53.9
1958.....	192,809 ¹	757,907,896	3,931	52.7	54.3
1959.....	187,981 ¹	780,031,534	4,150	51.5	54.2
1960.....	175,537 ¹	740,475,804	4,218	52.0	54.2

¹ Includes employees engaged in cartage and highway transport (rail) operations.

Government Aid to Railways.—In order that the private railways of Canada might be constructed in advance of settlement as colonization roads or through sparsely settled districts where little traffic was available, it was necessary for federal and provincial governments and even for municipalities to extend some form of assistance. The form of aid was usually a bonus of a fixed amount for each mile of railway constructed and, in the early days, grants of land were also made other than for right-of-way. As the country developed, objections to the land-grant method became increasingly apparent and aid was given more frequently in the form of a cash subsidy for each mile of line, a loan or a subscription to the shares of the railway. Guarantees of debenture issues were given in a later period and, since the formation of the Canadian National Railways, all debenture issues of that System, except those for rolling-stock, have been guaranteed by the Federal Government.

During the era of railway expansion before 1918, provincial governments guaranteed the bonds of some railway lines that afterwards were incorporated in the Canadian National Railway System. These bonds as they mature or are called are paid off by the Canadian National Railways, in large measure through funds raised by the issue of new bonds with Federal Government guarantee. Bonds guaranteed by the Governments of New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia have been eliminated in this manner in recent years. Railway bonds guaranteed by the Government of Canada at Dec. 31, 1961 amounted to \$1,670,653,176; this amount includes \$97,756 perpetual debenture stock and guaranteed stock of the former Grand Trunk Railway, now part of the Canadian National Railway System, on which interest and dividends are guaranteed by the Federal Government.

Subsection 3.—Passenger and Freight Traffic

Tables 8 and 9 show passenger and freight statistics for all railways for the years 1951-60. A separate analysis of the operations and traffic of the Canadian National Railways is given at pp. 775-776.

8.—Statistics of Passenger Service and Revenue, 1951-60

Year	Revenue Passenger- Train Miles ¹	Passenger- Train Car Miles ¹	Passengers Carried ²	Passenger- Miles	Passenger- Miles per Mile of Line
	No.	No.	No.	No.	No.
1951.....	46,200,947	415,178,734	30,995,604	3,110,240,504	72,424
1952.....	47,663,617	431,234,562	30,167,145	3,151,261,385	73,319
1953.....	46,977,271	430,726,717	28,736,159	2,985,943,809	69,378
1954.....	45,745,089	416,969,275	28,396,528	2,863,036,611	66,391
1955.....	44,556,022	417,729,975	27,229,962	2,891,685,018	64,853
1956.....	43,782,624	420,687,663	26,070,766	2,907,568,012	64,934
1957.....	41,629,954	409,175,053	22,965,974	2,925,132,819	65,236
1958.....	40,545,723	382,340,605	21,376,438	2,485,860,569	55,040
1959.....	38,212,310	267,551,267	20,939,928	2,445,654,114	54,109
1960.....	34,492,952	344,995,828	19,497,233	2,263,794,875	50,212
	Average Receipts per Passenger- Mile	Average Receipts per Passenger	Average Passenger Journey	Average Passengers per Train	Passenger- Train Revenue per Passenger- Train Mile
	cts.	\$	miles	No.	\$
1951.....	2.86	2.87	100	67	3.36
1952.....	2.88	3.01	104	66	3.50
1953.....	2.88	2.99	104	64	3.53
1954.....	2.87	2.89	101	63	3.44
1955.....	2.87	3.05	106	65	3.60
1956.....	2.93	3.27	112	66	3.16
1957.....	2.97	3.78	127	70	3.30
1958.....	3.11	3.62	116	61	3.11
1959.....	3.01	3.51	117	64	3.29
1960.....	3.05	3.55	116	66	3.46

¹ Includes express, baggage, mail and other cars.

² Duplications included.

9.—Statistics of Freight Service and Revenue, 1951-60

Year	Revenue Freight- Train Miles	Revenue Freight- Train Car Miles ¹	Freight Carried ²	Freight Ton-Miles	Freight Ton-Miles per Mile of Line
	No.	No.	tons	No.	No.
1951.....	87,181,640	3,384,341,192	161,260,521	64,300,418,000	1,497,274
1952.....	89,217,123	3,551,802,171	162,175,381	68,430,417,000	1,592,146
1953.....	84,997,904	3,448,530,542	156,249,259	65,267,016,000	1,516,462
1954.....	75,334,248	3,088,504,846	143,194,840	57,547,300,439	1,333,216
1955.....	79,072,523	3,414,942,330	167,862,156	66,176,128,925	1,483,273
1956.....	87,088,493	3,890,694,617	189,608,272	78,819,966,395	1,760,135
1957.....	77,991,848	3,540,096,145	174,163,028	71,047,229,093	1,584,343
1958.....	66,655,553	3,324,507,990	153,524,948	66,358,829,403	1,469,050
1959.....	68,351,068	3,322,166,683	166,186,216	67,956,540,372	1,503,362
1960.....	63,887,230	3,249,823,860	158,466,368	65,444,784,480	1,451,410

For footnotes, see end of table.

9.—Statistics of Freight Service and Revenue, 1951-60—concluded

Year	Freight Receipts per Ton per Mile	Receipts per Ton Hauled	Average Length of Freight Haul	Average Train Load, Revenue Tons	Average Load per Loaded Car Mile	Revenue per Freight-Train Mile
	cts.	\$	miles	tons	tons	\$
1951.....	1.362	5.43	399	738	30.61	10.05
1952.....	1.377	5.81	422	767	31.68	10.56
1953.....	1.489	6.22	418	768	31.16	11.43
1954.....	1.516	6.09	402	764	30.34	11.58
1955.....	1.460	5.75	394	837	31.30	12.21
1956.....	1.409	5.85	416	905	33.12	12.75
1957.....	1.520	6.21	408	911	32.86	13.85
1958.....	1.501	6.49	432	967	32.35	14.51
1959.....	1.557	6.37	409	994	33.31	15.48
1960.....	1.517	6.26	413	1,024	33.11	15.54

¹ Includes caboose miles but excludes miles made in passenger and non-revenue trains.

² Excludes traffic handled by more than one railway; see Table 10 for details of freight carried.

The total tonnage of revenue freight carried (including national loadings and receipts from United States rail connections) was 4.6 p.c. lower in 1960 than in 1959. Among the main commodity groups, agricultural products, mine products and manufactures and miscellaneous products recorded decreases but animal and forest products were up slightly. Of the 158,462,134 tons carried in 1960 (excluding freight handled by more than one railway and in intermediate switching), mine products accounted for 41.4 p.c., manufactures and miscellaneous products for 30.5 p.c., agricultural products 16.8 p.c., forest products 9.4 p.c., animal products 1.1 p.c., and less-than-carload freight for 0.8 p.c.

10.—Commodities Hauled as Freight by Railways, 1957-60

Note.—In this table duplications are eliminated, i.e., the same freight handled by two or more railways is counted only once. The statistics do not include the United States lines of the Canadian National Railways, but the link of the Canadian Pacific Railway line across Maine, U.S.A., is included, as are the Canadian sections of United States railways.

Commodity	1957	1958	1959	1960
	tons	tons	tons	tons
Agricultural Products	28,376,417	29,309,235	27,988,690	26,666,459
Wheat.....	13,160,234	14,553,875	13,794,365	13,293,302
Oats.....	1,709,666	1,490,516	1,372,154	1,186,626
Other grain.....	5,136,833	5,181,033	4,906,172	4,292,962
Flour, wheat.....	1,449,408	1,629,846	1,689,048	1,639,965
Other mill products.....	2,057,225	1,887,424	1,708,274	1,659,275
Other agricultural products.....	4,863,051	4,666,541	4,518,677	4,594,329
Animal Products	1,939,952	1,634,878	1,571,388	1,695,451
Livestock.....	654,985	605,105	507,389	430,234
Meats and other edible packing-house products.....	645,307	506,288	550,999	781,520
Other animal products.....	639,660	523,485	513,000	483,697
Mine Products	73,322,895	59,895,924	71,178,434	65,541,195
Coal, anthracite.....	2,129,366	1,615,401	1,555,774	1,378,104
Coal, bituminous, subbituminous, lignite.....	14,657,576	12,854,100	11,949,461	11,259,474
Coke.....	2,107,206	1,585,402	1,581,553	1,582,395
Ores and concentrates.....	29,266,699	21,287,157	30,840,791	28,386,836
Sand and gravel.....	6,704,330	6,997,118	6,442,813	6,308,623
Stone (crushed, ground, broken).....	7,777,451	7,017,430	6,694,809	5,952,700
Other mine products.....	10,680,267	8,539,316	12,113,233	10,673,063

10.—Commodities Hauled as Freight by Railways, 1957-60—concluded

Commodity	1957	1958	1959	1960
	tons	tons	tons	tons
Forest Products	16,645,959	14,556,917	14,736,118	14,960,197
Lumber, posts, poles, pilings and ties.....	2,192,371	1,948,460	2,105,792	2,592,553
Softwood and other firewood.....	45,736	31,907	27,651	16,077
Pulpwood.....	6,544,796	4,731,075	4,121,483	4,794,373
Lumber, timber, box, crate and cooperage material.....	6,797,932	6,802,421	7,282,234	6,411,739
Other forest products.....	1,065,105	1,045,024	1,198,958	1,145,455
Manufactures and Miscellaneous	51,690,952	46,531,971	49,162,943	48,285,917
Coal and petroleum products.....	8,761,633	8,402,525	8,325,030	7,851,365
Iron and steel (bar, sheet, structural, pipe).....	5,581,631	3,672,365	4,264,303	3,986,862
Automobiles, trucks and parts.....	2,152,072	1,518,220	1,803,103	1,998,474
Newspaper.....	4,577,228	4,115,818	4,253,951	4,236,852
Wood pulp.....	2,479,597	2,312,458	2,547,531	2,518,188
Other manufactures and miscellaneous.....	28,130,181	26,513,546	27,990,022	27,694,176
Less-than-Carload Lots	2,068,885	1,509,831	1,457,576	1,312,915
Grand Totals	174,044,161	153,441,756	166,095,149	158,462,134

Railway Accidents. The figures given in Tables 11 and 12 of persons killed or injured on railways include those involved in both train and non-train accidents. All passengers injured are included in the figures but, for employees, only those that kept the employee from his work for at least three days during the ten days following the accident are recorded.

11.—Passengers, Employees and Others Killed or Injured on Railways, 1951-60

NOTE.—Figures for 1951-59 are given in the corresponding table of previous Year Books beginning with the 1922-23 edition.

Year	Passengers		Employees		Others ¹		Totals	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	5	221	84	7,651	301	723	390	8,505
1952.....	2	183	74	7,019	317	707	393	7,909
1953.....	4	181	35	5,917	266	727	305	6,825
1954.....	4	251	48	4,654	245	586	297	5,491
1955.....	1	235	48	4,467	258	552	307	5,254
1956.....	7	126	71	4,378	301	649	379	5,153
1957.....	2	193	36	4,082	287	580	325	4,855
1958.....	1	124	46	3,315	280	445	327	3,884
1959.....	9	193	42	3,256	265	627	316	4,076
1960.....	2	215	33	2,683	237	593	272	3,491

¹ Includes postal, express and pullman employees, trespassers and others.

Accidents tabulated include all those in which railway trains were involved and accidents on railway property. The classification of accidents used for DBS vital statistics treats collisions between motor vehicles and trains as motor vehicle accidents; provincial statistics also class them as motor vehicle accidents and consequently adjustments should be made when compiling total accidental deaths of all kinds or comparing results of accidents of different kinds, such as train and motor vehicle.

12.—Persons Killed or Injured on Railways, by Specified Cause, 1958-60

Class of Person and Description of Accident	1958		1959		1960	
	Killed	Injured	Killed	Injured	Killed	Injured
ACCIDENTS RESULTING FROM MOVEMENT OF TRAINS, LOCOMOTIVES OR CARS						
Class of Person—	No.	No.	No.	No.	No.	No.
Passengers.....	1	83	9	151	2	151
Employees.....	33	1,016	30	1,092	24	895
Trespassers.....	78	51	65	56	52	63
Non-trespassers.....	192	299	196	505	183	463
Postal clerks, expressmen, etc.....	—	13	3	14	1	14
Totals.....	304	1,462	303	1,813	262	1,586
Description of Accidents (Employees and Passengers only)—						
Coupling and uncoupling.....	3	46	—	50	—	47
Collisions.....	6	58	15	188	6	182
Derailments.....	2	40	4	44	4	34
Locomotives or cars breaking down.....	—	1	—	18	—	3
Falling from trains or cars.....	7	79	2	80	4	52
Getting on or off trains.....	3	255	1	247	2	207
Struck by trains, etc.....	7	20	11	17	3	9
Overhead and other obstruction.....	—	11	3	26	—	19
Other causes.....	6	589	3	573	7	488
Totals.....	34	1,099	39	1,243	26	1,046
ALL OTHER ACCIDENTS						
Class of Person—	No.	No.	No.	No.	No.	No.
Stationmen.....	2	256	—	239	1	215
Shopmen.....	2	764	3	739	1	545
Trackmen.....	7	836	8	760	5	668
Other employees.....	2	443	1	426	2	360
Passengers.....	—	41	—	42	—	64
Others.....	10	82	1	52	1	53
Totals.....	23	2,422	13	2,258	10	1,905

Subsection 4.—The Canadian National Railway System*

In view of the interest in Canada's publicly owned railway, the Canadian National Railway System is given separate treatment in this Subsection. Its history is presented in a special article published in the 1955 Year Book at pp. 840-847. More detailed information than can be given here is obtainable from DBS annual report *Canadian National Railways* (Catalogue No. 52-201).

Financial Statistics.—The original financial structure of the CNR and the steps taken through the Capital Revision Acts of 1937 and 1952 to alleviate the burden of interest debt undertaken by the company on its formation in 1923 are described in the special article mentioned above. Briefly, the Capital Revision Act of 1937 wrote off all loans that had been made to cover deficits and also unpaid interest on loans, and certain loans made for the purpose of additions and betterments were converted to equity capital, relieving the CNR from paying fixed charges on this amount. Under the 1952 Capital Revision Act, 50 p.c. of the company's interest-bearing debt was changed to preferred stock on which, after settling income taxes, a dividend of 4 p.c. is paid on earnings. Also, for a term of ten years ended Dec. 31, 1961, the Railway was not obliged to pay interest on \$100,000,000 of its long-term debt. The Government is authorized to buy additional

* The Hudson Bay Railway, formerly managed and operated for the Federal Government by the CNR, was absorbed into the Canadian National Railway System on Jan. 1, 1958, to be operated in the same manner as other Canadian Government railway lines. Statistics of the Hudson Bay Railway are therefore included with CNR data for 1958 and subsequent years.

preferred stock annually in amounts related to the company's gross revenues. As a consequence, the proportion of total capitalization represented by equity capital in shareholders' account was raised from 34.5 p.c. at Dec. 31, 1951 to 67.2 p.c. at Jan. 1, 1952, and the proportion of borrowed capital was correspondingly reduced.

13.—Capital Structure of the Canadian National Railway System as at Dec. 31, 1952-61

At Dec. 31—	Shareholders' Capital		Funded Debt Held by Public		Government Loans and Appropriations—Active Assets in Public Accounts	Total
	Government of Canada Shareholders' Account	Capital Stock Held by Public	Guaranteed by Federal and Provincial Governments	Other		
	\$	\$	\$	\$	\$	\$
1952	1,531,072,324	4,516,490	518,396,607	87,098,222	228,055,165	2,369,138,808
1953	1,552,050,087	4,514,490	513,977,391	75,834,299	342,140,048	2,488,516,295
1954	1,571,393,181	4,514,490	910,422,885	62,546,711	126,771,981	2,675,649,248
1955	1,591,902,624	4,511,150	861,870,899	34,493,192	199,444,622	2,692,222,487
1956	1,616,270,966	4,508,670	794,482,906	25,086,606	353,664,828	2,794,013,976
1957	1,639,451,306	4,505,870	730,346,711	17,978,788	623,967,851	3,016,250,526
1958	1,704,387,845	4,504,203	1,024,710,205	9,098,765	484,791,699	3,227,492,717
1959	1,723,909,722	4,503,549	1,235,510,205	5,548,765	345,684,052	3,415,156,293
1960	1,721,143,162	4,499,284	1,677,209,473	3,098,765	148,021,700	3,553,972,389
1961	1,744,673,266	4,499,273	1,670,653,176	2,423,765	164,593,150	3,586,842,630

In Table 14 the assets of the Canadian National Railway System as at Dec. 31, 1960 and 1961 are compared with those at the time of consolidation of the system.

14.—Assets of the Canadian National Railway System as at Dec. 31, 1922, 1960 and 1961

Account	Dec. 31, 1922	Dec. 31, 1960	Dec. 31, 1961	Increase or Decrease 1922 to 1961
	\$	\$	\$	\$
Current Assets	87,580,218	192,815,088	202,821,146	115,240,928
Cash	14,651,422	24,239,062	25,025,136	10,373,714
Special deposits	6,139,435	246,704	48,209	-6,091,226
Traffic accounts receivable	2,528,622	4,827,579	5,256,580	2,727,958
Agent and conductor balances	5,386,673	28,191,358	32,292,563	26,905,890
Other accounts receivable	16,981,289 ¹	30,770,648	29,804,560	12,823,271
Government of Canada due on deficit account	—	2,496,777	18,607,772	18,607,772
Material and supplies	41,408,999	84,605,144	74,609,162	33,200,163
Interest and dividends receivable	377,003	3,239,419	3,226,234	2,849,231
Other current assets	106,775	14,198,397	13,950,930	13,844,155
Investments	1,842,428,131	4,057,044,937	4,138,654,068	2,296,225,937
Road and equipment property	1,765,323,644	3,689,214,173	3,735,663,809	1,970,340,165
Improvements on leased property	1,492,123	1,323,539	1,325,971	-166,152
Acquisition adjustment—U.S. lines	—	Cr. 3,776,424	Cr. 3,776,424	-3,776,424
Non-rail property	34,767,914	105,658,286	121,164,443	86,396,529
Capital and other reserve funds	6,171,808	523	534	-6,171,274
Investments in affiliated companies	24,253,323	262,368,504	281,269,266	257,015,943
Other investments	10,419,319	2,256,336	3,006,469	-7,412,850
Deferred Assets	12,325,297	42,517,893	43,841,771	31,516,474
Working fund advances	166,847	837,791	792,187	625,340
Insurance and other funds	352,488	15,000,000	15,000,000	14,647,512
Other deferred assets	11,805,962	26,680,102	28,049,584	16,243,622
Unadjusted Debits	15,697,557	41,839,324	39,422,256	23,724,699
Prepayments	322,059	2,697,728	2,551,208	2,229,149
Discount on funded debt	1,919,635	26,762,278	24,236,133	22,316,498
Other unadjusted debits	13,455,863	12,379,318	12,634,915	-820,948
Grand Totals	1,958,031,203	4,334,217,242	4,424,739,241	2,466,708,038

¹ Includes "loans and bills receivable" and "rents receivable".

The financial details presented in Table 15 are those of the entire Canadian National Railway System, including both Canadian and United States operations. Revenues and expenses include those of express and commercial communications throughout, and high-way transport (rail) operations from 1956. In conformity with the requirements of the Uniform Classification of Accounts, tax accruals and rents have been charged to operating expenses since Jan. 1, 1956.

15.—Total Revenue, Operating Expenses, Net Revenue, Fixed Charges and Deficits of the Canadian National Railway System (Canadian and United States Operations), 1952-61

NOTE.—Figures for 1911-51 are given in the corresponding table of previous Year Books beginning with the 1936 edition.

Year	Total Operating Revenue	Total Operating Expenses	Income Available for Fixed Charges	Total Fixed Charges	Net Income or Deficit ¹	Cash Deficit or Surplus ²
	\$	\$	\$	\$	\$	\$
1952.....	675,219,415	634,852,915	25,702,660	25,415,189	Cr. 287,471	Cr. 142,327
1953.....	696,622,451	659,049,086	29,238,623	29,376,160	Dr. 137,537	Dr. 244,017
1954.....	640,637,280	626,465,374	7,574,821	32,527,264	" 24,952,443	Dr. 28,758,098
1955.....	683,088,794	629,013,125	43,478,955	33,004,300	Cr. 10,474,655	Cr. 10,717,689
1956.....	774,800,647	728,008,837	57,623,710	31,782,991	" 25,840,719	" 26,076,951
1957.....	753,165,964	755,214,378	6,913,660	36,971,680	Dr. 30,058,020	Dr. 29,572,541
1958.....	704,947,410	719,211,865	Dr. 4,779,895	46,521,236	" 51,301,131	" 51,591,424
1959.....	740,165,041	741,852,260	5,209,509	52,512,649	" 47,303,140	" 43,688,290
1960.....	693,141,106	705,818,310	Dr. 6,473,732	69,088,803	" 75,562,535	" 67,496,777
1961.....	710,305,173	722,147,553	" 4,831,862	72,987,242	" 77,819,104	" 67,307,772

¹ Includes appropriations for insurance fund.

² Contributed by or paid to the Federal Government.

Milage and Traffic.—At Dec. 31, 1961, first main track milage of the Canadian National Railways (including electric lines and lines in the United States but excluding lines of the Northern Alberta Railways and Toronto Terminals Railway controlled jointly by the Canadian National and the Canadian Pacific Railways) was 24,321 miles.

16.—Train Traffic Statistics of the Canadian National Railways (Canadian and United States Lines), 1958-61

NOTE.—Includes electric lines.

Milage and Traffic	1958	1959	1960	1961
Train Milage..... miles	62,732,107	62,556,301	57,525,935	55,180,447
Passenger service.....	23,075,444	22,394,255	21,292,408	19,576,875
Freight service.....	37,507,065	37,754,181	34,379,411	34,041,907
Work service.....	2,149,598	2,407,865	1,854,116	1,561,665
Passenger-Train Car Milage..... miles	219,959,605	217,727,131	211,939,049	199,177,610
Coaches and combination (excl. work service).....	54,026,074	51,682,574	49,618,353	45,084,676
Motor unit cars.....	3,895,660	4,153,329	3,913,225	3,762,495
Parlour, sleeping and dining cars.....	59,647,337	59,225,517	57,198,952	51,081,594
Baggage, mail, express, etc.....	102,390,534	102,665,711	101,208,519	99,228,845
Freight-Train Car Milage..... miles	1,856,288,249	1,851,192,256	1,774,972,100	1,795,163,443
Loaded freight.....	1,193,097,849	1,171,769,671	1,099,465,199	1,095,441,528
Empty freight.....	625,314,743	641,624,285	640,512,172	665,300,974
Caboose.....	37,875,657	37,798,300	34,694,729	34,420,941

16.—Train Traffic Statistics of the Canadian National Railways (Canadian and United States Lines), 1958-61—concluded

Milage and Traffic	1958	1959	1960	1961
Work-Train Car Milage miles	7,361,184	5,042,176	4,391,784	3,302,287
Passenger Traffic—				
Passengers carried (earning revenue) No.	12,737,113	12,693,777	13,307,901	12,104,791
Passengers carried (earning revenue) one mile	1,268,780,666	1,272,152,625	1,208,382,297	1,075,770,694
Passenger-miles per mile of road.....	50,993	51,115	48,443	43,283
Average passenger journey..... miles	99.6	100.2	100.0	88.9
Average amount received per passenger \$	3.26	3.17	3.19	2.87
Average amount received per passenger-mile..... \$	0.03270	0.03159	0.03171	0.03234
Freight Traffic—				
Revenue freight carried..... tons	79,488,001	82,202,096	77,688,926	76,022,886
Revenue freight carried one mile	35,079,831,759	35,512,136,785	34,011,491,932	34,723,214,717
Revenue freight carried one mile per mile of road.....	1,404,774	1,423,304	1,358,680	1,397,069
Total (all classes) freight carried one mile per mile of road.....	1,467,772	1,473,014	1,400,758	1,419,496
Average hauls, revenue freight..... miles	441.3	433.2	437.8	456.7
Gross ton miles per freight train hour.. No.	41,764	42,937	46,628	50,172
Freight revenue per ton..... \$	6.86	6.99	6.77	6.76
Freight revenue per ton-mile..... \$	0.01554	0.01613	0.01547	0.01480

Section 2.—Express Companies

Express, which is actually expedited freight carried on passenger trains, is a service provided by rail carriers either through a separate express company or as a department of the railway organization. Many express and package freight shipments are handled on a contract basis—contracts which provide for payment to the railways of a fixed percentage of the gross express revenue.

Express companies are organized under authority of federal legislation and their business concerns the rapid transit of valuable or perishable commodities and animals, the delivery of parcels and the issuing of financial papers, money orders, travellers cheques and letters of credit. Express rates are usually much higher than freight rates and the two services are not normally competitive. Both tariffs are subject to the approval of the Board of Transport Commissioners.

Five express organizations operate in Canada—four Canadian and one American. The Canadian Pacific Express Company is a subsidiary of the Canadian Pacific Railway Company and handles the express business on the railways and the inland and ocean steamship lines of the parent company. The express business of the Algoma Central and Hudson Bay Railway, the Canadian National Railway System, and the Northern Alberta Railways is handled by departments of the respective railways. The Railway Express Agency Incorporated, of the United States, operates mainly over the Canadian sections of United States railways and over the route from Skagway in Alaska to points in Yukon Territory. Operations of the Algoma Central and Hudson Bay Railway express department were reported for the first time in 1957. No statistics are available on the volume of express traffic because much of it consists of parcels and small lots that cannot be classified.

17.—Summary Statistics of Express Companies, 1951-60

NOTE.—Figures for 1911-50 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

Year or Company	Milages Operated in Canada ¹	Gross Earnings	Operating Expenses ²	Express Privileges ³	Net Operating Revenue
	No.	\$	\$	\$	\$
1951.....	57,355	60,423,503	38,374,128	21,037,164	1,012,211
1952.....	57,355	70,185,114	44,744,018	24,428,739	1,012,357
1953.....	55,805	74,298,948	49,569,842	23,584,806	1,142,300
1954.....	68,373	70,039,054	48,167,243	20,753,503	1,118,308
1955.....	65,916	73,434,962	48,726,272	23,533,770	1,174,920
1956.....	67,984	88,012,718	60,180,066	27,114,672	717,980
1957.....	65,516	85,630,963	61,385,390	23,870,836	374,737
1958.....	65,982	89,558,161	62,120,291	23,797,450	640,420
1959.....	67,523	88,834,704	63,194,957	25,061,221	578,526
1960.....	62,154	84,986,847	61,123,030	23,242,445	621,372
1960					
Algoma Central and Hudson Bay Rly..	322	100,712	66,372	22,800	11,540
Canadian National Express.....	40,410	44,157,067	32,004,959	11,692,276	459,832
Canadian Pacific Express.....	17,543	35,465,840	25,484,676	9,831,164	150,000
Northern Alberta Railways.....	928	424,172	236,107	188,065	—
Railway Express Agency, Inc. (U.S.A.)	2,951	4,839,056	3,330,916	1,508,140	—

¹ Over railways, boat lines, motor carrier and aircraft routes.

² Includes tax accruals from 1956 in accordance with the Uniform Classification of Accounts adopted Jan. 1, 1956.

³ Amounts paid by express companies to the carriers, i.e., railways, steamship lines, etc., for transporting express matter.

18.—Business Transacted by Express Companies in Financial Paper, 1956-60

Item	1956	1957	1958	1959	1960
	\$	\$	\$	\$	\$
Money orders, domestic and foreign....	137,713,945	134,742,142	133,303,403	126,470,170	118,271,143
Travellers cheques, domestic and foreign.....	8,450,960	9,047,823	9,096,103	9,288,616	9,707,598
C.O.D. cheques.....	19,985,044	18,417,906	20,117,337	19,134,412	17,971,578
Telegraphic transfers.....	140,283	488,156	129,420	142,728	79,631
Totals.....	166,290,232	162,696,027	162,646,263	155,035,926	146,029,950

19.—Employees, Salaries, Wages and Commissions of Express Companies, 1951-60

Year	Employees ¹	Salaries and Wages ¹	Com- missions Paid	Year	Employees ¹	Salaries and Wages ¹	Com- missions Paid
	No.	\$	\$		No.	\$	\$
1951.....	9,610	28,607,463	2,443,341	1956.....	12,448	40,981,769	3,044,285
1952.....	10,849	32,503,058	2,689,830	1957.....	12,133	42,172,398	2,930,514
1953.....	12,119	37,413,060	2,795,766	1958.....	11,507	42,460,212	2,963,996
1954.....	11,450	35,882,288	2,691,440	1959.....	11,411	42,673,976	2,985,627
1955.....	11,593	36,200,739	2,745,259	1960.....	10,733	40,206,239	2,736,817

¹ Full-time employees only for 1951-53 and all employees, including part-time, for 1954-60.

PART III.—ROAD TRANSPORT*

Highways and motor vehicles are herein treated as related features of transportation. An introductory Section summarizes provincial regulations regarding motor vehicles and motor traffic.

Section 1.—Provincial Motor Vehicle and Traffic Regulations

NOTE.—It is obviously impossible to include here the great mass of detailed regulations in force in each province and territory; only the more important general information is given. The source of information for detailed regulations for each province and territory is given at p. 780.

The registration of motor vehicles and the regulation of motor vehicle traffic lies within the legislative jurisdiction of the provincial and territorial governments. Regulations common to all provinces and territories are summarized as follows.

Operators' Licences.—The operator of a motor vehicle must be over a specified age, usually 16 years (17 in Newfoundland and Quebec, and 18 for class A licence in Alberta), and must carry a licence, obtainable in most provinces only after prescribed qualification tests and renewable annually, except in Alberta and British Columbia where it is renewable every five years, and in New Brunswick and Manitoba where it is renewable every two years. Special licences are required for chauffeurs in all provinces except Newfoundland and in some jurisdictions special licences may be granted to those who have not reached the specified age.

Motor Vehicle Regulations.—In general, all motor vehicles and trailers must be registered annually, with the payment of specified fees, and must carry two registration plates, one on the front and one on the back of the vehicle (one only for the back of trailers), with the exception that Alberta does not require the licensing of trailers used for personal purposes. In most provinces, in event of sale the registration plates stay with the vehicle but in Manitoba, Saskatchewan and Alberta the plates are retained by the owner. In Nova Scotia vehicles pass from owner to owner by due process of law and title must be secured before issue of plates and permit. A change of ownership of the vehicle must be recorded with the registration authority. However, exception from registration is granted for a specified period (usually at least 90 days, except in Quebec where the maximum is 90 days and in British Columbia and Ontario where it is six months) in any year to visitors' private vehicles registered in another province or a state that grants reciprocal treatment. Regulations require a safe standard of efficiency in the mechanism of the vehicle and of its brakes and stipulate that equipment include non-glare headlights, a proper rear light, a muffler, a windshield wiper, a rear-vision mirror, and a warning device.

Traffic Regulations.—In all provinces and territories, vehicles keep to the right-hand side of the road. Everywhere motorists are required to observe traffic signs, lights, etc., placed at strategic points on highways and roads. The speed limit in Quebec and New Brunswick is 60 miles an hour in daytime and 55 at night; in Manitoba and Alberta it is 60 in daytime and 50 at night, with the exception of a few selected sections of four-lane highways in Alberta where maximum speeds are 65 in daytime and 55 at night. In Nova Scotia the limit is a "reasonable and prudent" speed, with a maximum of 60 miles an hour. In Ontario maximum speeds vary from 50 to 60 miles an hour, depending on type of highway. In the other provinces the maximum speed permitted is normally 50 miles an hour. Slower speeds are always required in cities, towns and villages, when passing schools and public playgrounds, at road intersections, railway crossings or at other places or times where the view of the highway for a safe distance ahead is in any way obscured. In almost all provinces, truck speed limits are at least five miles an hour below automobile speed limits. In all provinces and territories, accidents resulting in personal injury or property

* Except as otherwise indicated, the material in this Part has been revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

damage of \$100 or more must be reported to a police officer (in Quebec to the Motor Vehicle Bureau) and a driver involved must not leave the scene of an accident until he has rendered all possible aid and disclosed his name to the injured party.

Driver Licensing Controls.—All provinces impose penalties for infractions of driving regulations, ranging from fines for minor infractions to suspension of the operator's driving permit, impounding of the car, or imprisonment for more serious infractions. In most provinces penalties have been linked to a driver-improvement program, the aim of which is to correct faulty driving habits, not to take drivers off the road. The most common driver-improvement program includes the demerit-point-system.

Safety Responsibility Legislation.—Each province has enacted legislation under this heading (sometimes referred to as financial responsibility legislation). In general, these laws provide for the automatic suspension of the driver's licence and motor vehicle permit of a person convicted of a serious offence (impaired driving, driving under suspension, etc.) or a person involved directly or indirectly in an accident who is not covered for third-party insurance at the time of the accident. The suspension remains effective until any penalty or judgment has been satisfied and proof of financial responsibility for the future is filed. In Quebec, Manitoba, Saskatchewan, Alberta, British Columbia and the Yukon Territory, uninsured motor vehicles may be impounded following an accident of any consequence, i.e., an accident resulting in personal injury or death, or property damage in excess of \$100 (\$200 in Saskatchewan and \$250 in British Columbia).

Although safety responsibility legislation has not been enacted in the Northwest Territories, the Motor Vehicle Ordinance requires the owner of a motor vehicle to submit evidence of stipulated insurance coverage on such vehicle before he can obtain registration. In the Yukon Territory, proof of insurance must be supplied before vehicle licence is issued. When the insurance expires or is cancelled, vehicle licence plates must be returned to the Registrar of Motor Vehicles.

Unsatisfied Judgment Fund.—Legislation has been enacted in all provinces except Saskatchewan and in the Territories, usually in the form of an amendment to the motor vehicle laws of the province, providing for the establishment of an Unsatisfied Judgment Fund out of which are paid judgments awarded for damages arising out of motor vehicle accidents in the province which cannot be collected in the ordinary process of law. The Fund is created by the collection annually of an Unsatisfied Judgment Fund fee from the registered owner of every motor vehicle or from every person to whom a driver's licence is issued, except in Newfoundland, Nova Scotia, Quebec and British Columbia where the Fund is maintained by insurance companies. This fee does not exceed \$1 per annum except that Ontario collects \$20 from each uninsured owner of a motor vehicle at the time of registration or transfer. A feature of this legislation which is contained in some provincial statutes provides for the payment of judgments in the so-called 'hit-and-run' accidents. When these occur, if neither the owner nor the driver can be identified, action may be taken against the Registrar of Motor Vehicles; any judgment secured against the Registrar is paid out of the Fund. All of these laws contain a provision limiting the amount that can be paid out of the Fund on one judgment. In Nova Scotia, Ontario and Alberta, the limits are \$10,000 for one person and \$20,000 for two or more persons injured in one accident. Ontario and Alberta provide for claims up to \$2,000 for property damage and Nova Scotia up to \$5,000. In Manitoba the legal limits are \$10,000, \$20,000 and \$1,000, respectively. In British Columbia, commencing Jan. 1, 1962, the limit is based on the single amount of \$25,000 for any one accident for claims for injury or property damage, with the proviso that not more than \$5,000 may be paid on a property damage claim until injury claims up to \$20,000 have been satisfied; the \$25,000 limit exists in British Columbia for hit-and-run accidents but does not apply to payments for property damage. In the other provinces lower limits of \$5,000, \$10,000 and \$1,000 are retained. For hit-and-run accidents, payments are made for personal injuries or death only.

Sources of information on provincial motor vehicle and traffic regulations:—

Newfoundland

Administration.—Deputy Minister of Finance, St. John's.

Legislation.—The Highway Traffic Act, 1951, as amended.

Prince Edward Island

Administration.—The Provincial Secretary, Charlottetown.

Legislation.—The Highway Traffic Act (RSPEI 1951, c. 73).

Nova Scotia

Administration.—Registry of Motor Vehicles, Department of Highways, Halifax.

Legislation.—The Motor Vehicle Act (1954, c. 184, as amended) and the Motor Carrier Act (RSNS 1923, c. 78, as amended).

New Brunswick

Administration.—Motor Vehicle Division, Provincial Tax Branch, Department of Provincial Secretary-Treasurer, Fredericton.

Legislation.—The Motor Vehicle Act (RSNB 1955, as amended).

Quebec

Administration.—Motor Vehicle Bureau, Department of Transportation and Communications, Parliament Bldgs., Quebec.

Legislation.—The Highway Code (RSQ 1941, c. 142 and 142A, as amended).

Ontario

Administration.—Ontario Department of Transport, Toronto.

Legislation.—The Highway Traffic Act (RSO 1960, c. 172), the Public Vehicles Act (RSO 1960, c. 337) and the Public Commercial Vehicles Act (RSO 1960, c. 319).

Manitoba

Administration.—Minister of Public Utilities, Winnipeg.

Legislation.—The Highway Traffic Act (RSM 1954, c. 112, as amended).

Saskatchewan

Administration.—Treasury Department, Highway Traffic Board, Revenue Building, Regina.

Legislation.—The Vehicles Act, 1957.

Alberta

Administration and Legislation. The Vehicles and Highway Traffic Act (RSA 1955, c. 356) and the Motor Vehicles Accident Indemnity Act (RSA 1955, c. 209) are administered by the Motor Vehicle Branch, Department of Highways, Edmonton. The Public Service Vehicles Act (RSA 1955, c. 265) and the Rules and Regulations are administered by virtue of authority vested in the Highway Traffic Board, Department of Highways, Edmonton.

British Columbia

Administration and Legislation. Enforcement of the Motor Vehicle Act, the Commercial Transport Act and the Motor Carrier Act is vested in the Royal Canadian Mounted Police and the various municipal police forces. The Motor Carrier Act is administered by the Public Utilities Commission, the Motor Vehicle Act by the Superintendent of Motor Vehicles and the Commercial Transport Act by the Minister of Commercial Transport, Victoria, B.C.

Yukon Territory

Administration.—Commissioner of the Yukon Territory, Whitehorse, Y.T. Information regarding regulations may also be obtained from the Registrar of Motor Vehicles, Government of the Yukon Territory, Whitehorse, Y.T.

Legislation.—The Motor Vehicles Ordinance (Revised Ordinances 1958, c. 77, as amended).

Northwest Territories

Administration.—Commissioner of the Northwest Territories. Address communications to the Director, Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

Legislation.—The Revised Ordinances of the Northwest Territories (SC 1956, c. 3, as amended).

Section 2.—Highways, Roads and Streets

Highways and Roads.—The populated sections of Canada are well supplied with highways and roads. Access to outlying settlements is provided to some extent by roads built by logging, pulp and paper, and mining companies, although these are not generally available for public travel. At the same time, great areas of Newfoundland, Quebec, Ontario, the Prairie Provinces, British Columbia and the Territories are very sparsely settled and are virtually without roads of any kind.

At the end of 1960, the mileage of highways and rural roads in Canada was 421,448, a decrease of 1,587 miles from the 423,035 reported in 1959. The main reasons for the decrease were the exclusion in 1960 of some mining roads not open to public traffic and the elimination of some unused road allowance. The total of 421,448 miles includes all roads under provincial jurisdiction, federal roads, and local roads under municipal jurisdiction other than the milages in metropolitan areas and urban centres of more than 1,000 population. The latter are given separately under the heading of "Urban Streets", p. 785.

1.—Highway and Rural Road Milage classified by Type and by Province, 1959 and 1960

NOTE.—Excludes urban streets but includes milages under jurisdiction of rural and small urban municipalities; excludes milages of all roads on Indian reservations except those of flexible pavement.

Year and Classification	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Canada
	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles	miles
1959												
Surfaced.....	3,851	2,335	12,435	13,198	41,354	68,310	23,139	33,566	46,382	22,289	1,853	268,712
Rigid pavement	—	14	7	4	510 ^r	1,481 ^r	196 ^r	—	6	15	—	2,233 ^r
Flexible pavement.....	278	642	2,835	3,322	11,588 ^r	12,955 ^r	2,160 ^r	2,222	3,500	4,232	8	43,742 ^r
Gravel.....	3,573	1,679	9,593	9,872	29,256	53,874	20,783	31,344	42,876	18,042	1,845	222,737
Earth.....	3,022	915	2,939	—	11,234	4,511	16,271	85,368	21,265	8,536	262	154,323
Totals, 1959..	6,873	3,250	15,374	13,198	52,588	72,821	39,410	118,934	67,647	30,825	2,115	423,035
1960												
Surfaced.....	3,968	2,406	13,059	13,424	43,096	69,968	23,526	36,716	49,607	18,085	2,042	275,897
Rigid pavement	—	14	7	3	284	1,392	221	—	7	46	3	1,977
Flexible pavement.....	380	754	3,182	3,390	12,520	14,779	2,234	2,525	3,774	5,097	5	48,640
Gravel.....	3,588	1,638	9,870	10,031	30,292	53,797	21,071	34,191	45,826	12,942	2,034	225,280
Earth.....	3,020	832	2,589	—	10,708	4,618	12,087	83,344	19,453	8,644	256	145,551
Totals, 1960..	6,988	3,238	15,648	13,424	53,804	74,586	35,613	120,060	69,060	26,729	2,298	421,448

Total expenditures on highways and rural roads in the year ended Mar. 31, 1961 was \$794,873,201, an amount 4.1 p.c. lower than that for the previous fiscal year; construction expenditures decreased by 4.0 p.c. and maintenance costs were 1.1 p.c. lower. Table 2 shows expenditure by province and the federal-provincial-municipal distribution of such expenditure for the years ended Mar. 31, 1957-61.

2.—Construction, Maintenance and General Expenditure on Highways, Rural Roads, Bridges and Ferries, by Province, Years Ended Mar. 31, 1957-61

Item and Province or Territory	1957	1958	1959	1960	1961
	\$	\$	\$	\$	\$
Construction.....	421,146,178¹	497,668,898	535,577,276	581,952,166	558,955,357
Newfoundland.....	6,675,115	6,063,686	15,422,240	16,706,494	15,220,169
Prince Edward Island.....	3,746,085	3,378,621	5,442,721	8,047,041	4,904,918
Nova Scotia.....	12,378,093	15,508,597	17,526,726	21,661,432	22,308,075
New Brunswick.....	14,994,989	17,313,315	23,200,007	24,634,111	24,003,092
Quebec.....	84,053,328	94,082,542	121,934,188	117,985,056	90,255,622
Ontario.....	115,855,688	156,094,352	172,480,378	181,722,245	180,952,627
Manitoba.....	18,902,472	21,500,959	25,676,854	35,198,111	32,181,577
Saskatchewan.....	23,611,136	17,497,330	32,177,138	30,165,755	35,939,574
Alberta.....	50,630,485	52,984,501	46,868,117	48,912,150	51,848,429
British Columbia.....	83,598,882	109,098,346	67,897,619	87,628,210	93,065,722
Yukon and N.W.T.....	3,999,750	4,146,649	6,951,278	9,291,561	8,245,492
Maintenance.....	189,877,569	178,126,885	209,903,710	206,210,266	203,913,296
Newfoundland.....	2,854,937	4,115,203	5,921,000	6,880,880	8,051,369
Prince Edward Island.....	1,257,941	1,345,050	1,634,229	1,791,333	1,994,518
Nova Scotia.....	13,845,101	11,386,596	12,397,624	11,767,809	12,054,901
New Brunswick.....	11,123,134	11,282,258	15,798,897	12,794,785	13,348,745
Quebec.....	41,685,630	43,070,708	53,400,913	53,278,310	54,350,944
Ontario.....	57,649,342	58,158,169	60,143,039	60,787,841	47,027,593
Manitoba.....	4,162,996	4,319,627	4,791,324	7,377,652	7,245,440
Saskatchewan.....	14,429,203	6,613,988	11,708,143	11,396,645	12,378,374
Alberta.....	22,758,513	20,108,685	24,362,277	23,606,690	27,162,526
British Columbia.....	18,000,792	15,442,032	17,088,678	13,677,501	17,553,064
Yukon and N.W.T.....	2,109,980	2,284,569	2,667,576	2,850,820	2,715,824
Administration and General ².....	40,775,633	19,910,434	24,176,849	40,955,396	32,004,546
Newfoundland.....	429,140	120,369	781,277	629,551	575,224
Prince Edward Island.....	62,089	91,212	72,080	65,285	171,388
Nova Scotia.....	961,299	1,243,849	1,774,992	1,980,051	1,935,450
New Brunswick.....	567,377	937,314	1,134,982	1,193,613	1,267,254
Quebec.....	3,353,079	2,627,142	3,429,532	3,711,572	4,770,910
Ontario.....	28,657,745	5,866,078	7,347,486	21,849,315 ³	13,833,351
Manitoba.....	1,080,353	1,330,759	1,649,152	1,964,122	2,603,349
Saskatchewan.....	1,644,620	2,467,587	2,732,186	2,729,526	1,458,611
Alberta.....	490,493	1,246,725	905,963	1,138,560	882,879
British Columbia.....	2,865,362	3,161,716	3,692,097	5,005,731	3,804,664
Yukon and N.W.T.....	496,076	582,683	415,001	483,770	503,201
Totals.....	653,567,078⁴	714,726,805⁵	772,748,991⁶	829,117,828	794,873,201
Distribution of All Expenditure—					
Federal.....	59,887,876	80,731,880	98,199,342	106,085,451	110,706,513
Provincial.....	525,204,516	581,187,652	616,512,226	657,600,188	609,100,471
Municipal.....	48,948,407	51,278,877	55,372,603	63,546,824	69,764,000
Other.....	19,526,279	1,525,396	2,664,820	1,855,365	5,302,217

¹ Includes payments from railways and contributions from the Railway Grade Crossing Fund toward elimination of grade crossings, etc., amounting to \$2,700,155.

² Includes federal administrative costs *re* Trans-Canada Highway amounting to \$168,000 in 1956-57, \$235,000 in 1957-58, \$242,100 in 1958-59, \$204,000 in 1959-60 and \$188,265 in 1960-61.

³ Includes \$3,974,818 for property purchases.

⁴ Includes expenditures of \$1,767,698 by municipalities in Manitoba for which no breakdown is available.

⁵ Includes expenditures of \$2,573,262 by municipalities in Manitoba, of \$14,932,793 by municipalities in Saskatchewan and of \$1,514,533 by the British Columbia Department of Highways for which no breakdown is available.

⁶ Includes expenditures of \$3,091,156 by municipalities in Manitoba for which no breakdown is available.

The Trans-Canada Highway.—The original federal-provincial agreement for construction of the Trans-Canada Highway is given in outline, together with other data on specifications and proposed route across the participating provinces, in the 1951 Year

Book, pp. 631-634. Under the Act, which became effective Dec. 10, 1949, agreements covering the Federal Government's participation in the cost of construction were entered into with each of the provinces (except Quebec). The Act set the standards to be met—a hard-surfaced, two-lane highway, 22 to 24 feet wide with ample shoulder widths, bridge clearances and sight distances, low gradients and curvature, a maximum load capacity of nine tons for one axle, and the elimination, wherever possible, of railway grade crossings. The shortest practicable east-west route was to be designated by each province within its own borders, in agreement on terminal points with adjoining provinces. Those sections within the National Parks were to be the responsibility of the Federal Government. Federal contribution was to be 50 p.c. of the cost of new construction and up to 50 p.c. of the cost of construction of sections of highway built prior to the passing of the Act, where those sections were properly incorporated in the Trans-Canada Highway. Total Federal Government contribution under this Act was limited to \$150,000,000.

An amendment to the Act in 1956 increased the extent of federal financial participation by providing for an additional 40-p.c. contribution on one-tenth of the highway mileage in each province. The construction period was extended to Dec. 31, 1960 and the aggregate limit of federal funds available for the purpose was increased to \$250,000,000. A second amendment passed in March 1959 added \$100,000,000 to the federal contribution and a third amendment passed in June 1960 raised the total amount of funds available for federal expenditure under the Act and its amendments to \$400,000,000. The 1960 amendment also extended for three years the period in which construction costs might be incurred under the Act. On Oct. 27, 1960, an agreement was signed between the Federal and Quebec Governments for participation in the Trans-Canada Highway.

Under present agreements, a paved highway is to be completed across Canada by May 31, 1964—a highway constructed in conformity with the general specifications laid down in the Act or paved to a satisfactory provincial standard. The latter concession was made to eliminate the need for reconstructing highways already paved in order to speed up the work on other sections. However, federal participation in the cost is limited to that portion constructed to Trans-Canada Highway standards.

In the ten provinces the routes, as amended in 1961, totalled 4,859 miles—in Newfoundland, 540 miles; Prince Edward Island, 71 miles; Nova Scotia, 318 miles; New Brunswick, 390 miles; Quebec, 398 miles; Ontario, 1,453 miles; Manitoba, 309 miles; Saskatchewan, 406 miles; Alberta, 282 miles; British Columbia, 552 miles; and in the National Parks, 140 miles. Later revisions in location have made some minor alterations. For instance, the mileage through Mount Revelstoke and Glacier National Parks in British Columbia was shortened by a change of route, as was the mileage in Newfoundland when the Highway was routed through Terra Nova National Park. The Federal Government expenditure for construction of the Highway through the National Parks during the year ended Mar. 31, 1961, totalled \$9,212,344.

Contractual commitments for new construction on the Highway up to February 1962 amounted to \$689,709,986, of which the federal share, including the additional 40 p.c. under the amended Act, approximated \$400,000,000. Federal payments to the provinces during this period for prior, interim and new construction totalled \$332,256,103. On-site labour expended on the Highway up to Mar. 31, 1961 was 10,682,043 eight-hour man-days of employment; off-site employment required for the provision of necessary material and services was estimated at 18,159,473 man-days.

In Saskatchewan, work was completed over the whole route of 406 miles in 1957 and the Highway was officially opened and dedicated on Aug. 21 of that year. In provinces more handicapped by problems of terrain and construction, progress was reported. At Dec. 31, 1961, contracts for 3,612 miles of grading had been approved and the equivalent of 3,387 miles built; paving to specified standards had been completed over a distance of 3,100 miles; and 557 bridges, overpasses and other structures of more than 20-foot span had been approved for construction.

Roads to Resources and Roads in the North.*—"Roads to Resources", a national program of resource development roads begun in 1958, approached the half-way mark in work completed in 1962. Entering the fifth year of the program, more than \$64,000,000 worth of work had been carried out in the ten provinces, contracts exceeding \$101,000,000 had been approved, and federal payments to the provinces amounted to more than \$31,000,000. The length of the new or reconstructed roads to be built under the program is almost 4,500 miles, of which over 1,700 had been completed. An expenditure of more than \$18,000,000 is expected during 1962-63; under the terms of the Roads to Resources agreements, the Federal Government will reimburse the provinces for half the amount.

Construction carried out under the program is designed to provide a series of resource development roads, for industries based on mining, forestry, commercial fishing, or the tourist trade. The roads vary in length from the less-than-one-mile French River Spur in Prince Edward Island to the 505-mile Uranium City road in northern Saskatchewan. No single date has been set for completion of all the roads, but the national average will be about eight years. The purpose of the program is essentially to open up and explore resource areas off the beaten track of established transportation routes. When completed, it will represent a joint investment by the federal and provincial governments of at least \$150,000,000. However, most provinces are carrying out work in excess of \$15,000,000 so that direct expenditures may reach a national total of \$177,000,000. The federal contribution to each province will remain at \$7,500,000.

Approximately 100 projects make up the Roads to Resources program. In any province the construction program may consist of as many projects as can qualify for inclusion and for which there are funds available. It is difficult to measure the effect that these access roads will have in the years to come on regional economies. A number of routes, such as those in Prince Edward Island and Nova Scotia, were chosen for their tourist potential and will no doubt play an important role in the growth of tourism. The tourist industry is now second only to newsprint as a dollar earner for Canada. The building of the roads also provides thousands of man-hours of employment, work that is spread over many levels of skills and labour.

Leading the provinces in length of routes are Saskatchewan with 811 miles and Manitoba with 692 miles. In British Columbia, the 320-mile Stewart-Cassiar Road to be built at an estimated cost of \$20,500,000 will open up new mining areas. In contrast to this one-project program of British Columbia, there are in Prince Edward Island 30 different projects with a total length of approximately 442 miles being constructed at an estimated cost of \$15,000,000.

Some of the more important projects in Western Canada will eventually be linked with the system of roads that is being built by the Federal Government in the Yukon and Northwest Territories. Under the development road program, the Federal Government will build 900 miles of road in the Yukon Territory on which will be spent an estimated \$36,000,000 and some 1,300 miles of road in the Northwest Territories at an estimated cost of \$64,000,000. Three hundred miles of road have been completed in the Yukon Territory and 395 miles are in use in the Northwest Territories. These two types of road system are distinct. In the Roads to Resources program, the contribution of the Federal Government is wholly financial; in the northern roads program, the Federal Government is responsible for construction. Maintenance of resource roads in the North is shared by the Federal Government and the territorial government concerned on an 85-15 p.c. basis.

The largest single project being carried out in the Northwest Territories is the reconstruction of the Mackenzie Highway. The first 60 miles of an extension to the Enterprise-Yellowknife Road, leading from Yellowknife to MacKay Lake, will be completed in 1962. In the Yukon Territory, a \$4,500,000 road construction program will be carried out during 1962. More than 100 miles of road will be built during the year as part of two major projects—the Watson Lake-Ross River Road and the Nahanni Range Road.

* Prepared in the Editorial and Information Division, Department of Northern Affairs and National Resources, Ottawa.

Revisions in the territorial roads policy came into effect in April 1962, permitting greater federal financial assistance to mining companies with exploration and development work, including road construction. Where two or more companies are developing a mineralized region, a mine development road may be built and paid for by the Federal Government. Assistance may also be given in the building of more elementary roads to give access to a mine or to enable the supplies for development to be transported to a property. Two-thirds of the cost of a mine-access road may be paid by the Federal Government, and one-half the cost of a basic tote-trail may be contributed by the territorial government concerned. Tote-trail assistance will be financed from a \$50,000 fund provided to each territorial government by the Federal Government.

Urban Streets.—Information on urban streets is obtained from urban authorities in all centres with populations of over 1,000 and also centres with fewer than 1,000 population located within census metropolitan areas. Brief statistical data are given in Table 3; more detail may be obtained from DBS annual report *Road and Street Mileage and Expenditure* (Catalogue No. 53-201).

3.—Statistics of Urban Streets, 1956-60

Item		1956	1957	1958	1959	1960
Total Expenditure Reported¹	\$'000	129,748	147,470	164,310	191,950	272,388
New construction.....	\$'000	62,277	68,428	72,085	93,884	166,324
Reconstruction, repair, cleaning, sanding, snow removal, administration, etc.....	\$'000	67,471	79,042	92,225	98,066	106,064
Total Urban Mileage	No.	22,823	24,841	25,652	37,614	37,769
Rigid pavement.....	"	6,049	5,239	5,659	6,072	6,448
Flexible pavement.....	"	5,507	8,121	8,504	13,173	13,395
Gravel and other surfaces.....	"	9,132	9,581	9,741	15,165	15,012
Earth.....	"	2,135	1,900	1,748	3,204	2,914

¹ Includes expenditures on sidewalks, footpaths, bridges and ferries.

Section 3.—Motor Vehicles

Motor Vehicle Registrations.—Registrations continue to increase year by year, a record of 5,256,341 being reached in 1960. Of that total, 4,104,415 were passenger cars—one for every 4.3 persons. Registrations by province are given in Table 4 and types of vehicles registered by province in Table 5.

4.—Motor Vehicles Registered, by Province, 1951-60

NOTE.—Registrations given here include passenger cars, trucks, buses, motorcycles, service cars, etc., but not trailers or dealer licences. Figures for 1904-50 are given in the corresponding table of previous Year Books beginning with the 1937 edition.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total ¹
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	20,058	16,896	105,262	83,023	500,729	1,205,098	171,265	215,450	259,841	291,417	2,872,420
1952.....	23,630	18,717	114,982	89,839	574,974	1,291,753	187,881	237,014	291,469	321,482	3,155,824
1953.....	29,576	20,286	129,564	93,914	617,855	1,403,119	203,652	257,504	218,812	348,830	3,430,672
1954.....	34,423	20,848	132,087	99,058	674,114	1,489,980	210,471	267,373	338,541	371,711	3,644,589
1955.....	39,766	22,145	149,841	106,648	743,682	1,617,853	222,474	274,950	356,839	409,343	3,948,652
1956.....	45,997	23,373	157,544	111,315	844,827	1,710,240	240,008	291,265	381,153	454,217	4,265,437
1957.....	47,982	22,725	164,286	116,712	901,065	1,793,499	246,188	300,326	405,229	491,884	4,497,091
1958.....	51,575	25,504	164,954	121,715	968,058	1,868,922	256,064	314,423	430,081	515,244	4,723,825
1959.....	51,145	27,502	189,435	129,629	1,040,366	1,973,737	269,974	326,690	456,458	545,491	5,017,686
1960.....	61,952	30,147	187,065	138,469	1,096,053	2,062,484	285,689	335,148	486,370	564,351	5,256,341

¹ Includes registrations in the Yukon and Northwest Territories.

5.—Types of Motor Vehicles Registered, by Province, 1959 and 1960

Year and Province or Territory	Passenger Cars ¹	Commercial Cars, Trucks, etc. ²	Buses	Motor-cycles	Total
	No.	No.	No.	No.	No.
1959					
Newfoundland.....	38,189	12,956	..	119	51,145
Prince Edward Island.....	17,408	9,965	10	..	27,502
Nova Scotia.....	140,196	47,418	819	1,002	189,435
New Brunswick.....	98,523	29,691	536	879	129,629
Quebec.....	798,935	223,139	5,464	12,828	1,040,366
Ontario.....	1,647,379 ⁺	311,074 ⁺	5,198	10,086	1,973,737
Manitoba.....	199,467	68,779	192	1,536	269,974
Saskatchewan.....	207,612	117,650	661	767	326,690
Alberta.....	315,057	135,229	3,367	2,805	456,458
British Columbia.....	419,422	121,941	3	4,128	545,491
Yukon and N.W.T.....	4,248	2,961	33	17	7,269
Canada, 1959.....	3,886,436⁺	1,080,803⁺	16,280	34,167	5,017,686
1960					
Newfoundland.....	45,586	16,095	..	271	61,952
Prince Edward Island.....	19,170	10,836	14	127	30,147
Nova Scotia.....	140,151	45,068	954	892	187,065
New Brunswick.....	106,167	30,923	562	817	138,469
Quebec.....	843,731	233,376	5,793	13,153	1,096,053
Ontario.....	1,732,933	314,291	5,899	9,361	2,062,484
Manitoba.....	213,263	70,803	184	1,439	285,689
Saskatchewan.....	213,147	120,533	682	786	335,148
Alberta.....	339,512	139,898	3,426	3,534	486,370
British Columbia.....	446,050	114,221	3	4,080	564,351
Yukon and N.W.T.....	4,705	3,844	48	16	8,613
Canada, 1960.....	4,104,415	1,099,888	17,562	34,476	5,256,341

¹ Includes taxis.² Includes service cars, road tractors, etc.³ Included with trucks.

Apparent Supply of Automobiles.—The apparent supply of automobiles in Canada in any year is computed by deducting the number exported from the sum of the production and imports. Statistics regarding retail sales and the financing of motor vehicle sales are given in Chapter XIX on Domestic Trade and Prices.

6.—Apparent Supply of New Automobiles, 1951-60

Year	Cars Made for Sale in Canada ¹		Car Imports		Re-exports of Imported Cars		Apparent Supply	
	Pas-senger	Com-mercial ²	Pas-senger	Com-mercial	Pas-senger	Com-mercial	Pas-senger	Com-mercial ³
	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	242,155	105,547	42,631	5,703	2,866	11	282,920	111,239
1952.....	245,443	112,485	35,665	4,328	999	11	280,109	116,802
1953.....	319,937	100,772	53,179	5,296	44	3	373,072	106,065
1954.....	267,452	59,666	38,509	4,973	84	25	305,877	64,614
1955.....	349,306	69,186	48,546	9,403	22	24	397,830	78,565
1956.....	349,809	85,094	76,200	13,032	45	42	425,964	98,084
1957.....	318,416	64,857	70,796	9,215	65	39	389,147	74,033
1958.....	280,677	55,908	104,195	9,182	190	8	384,682	65,082
1959.....	285,841	63,429	153,932	11,632	549	6	439,224	75,055
1960.....	307,499	66,293	170,653	9,376	179	56	477,973	75,613

¹ Factory shipments since 1952.² Includes Armed Forces vehicles.

Provincial Government Revenue from Motor Vehicles.—The taxation of motive fuels, motor vehicles, garages, drivers, chauffeurs, etc., is an important source of provincial government income. In every province licences or permits duly issued by the provincial authorities are required for motor vehicles of all kinds, trailers, operators or drivers, paid chauffeurs, dealers, garages and gasoline and service stations. In 1960 the average cost per motor vehicle for operating taxes and licences was about \$108. Motive fuel tax rates in the different provinces and territories in that year were as follows:—

Province or Territory	Gasoline	Diesel Fuel	Liquefied Petroleum Gases
	cts.	cts.	cts.
Newfoundland.....	19	19	—
Prince Edward Island.....	16	16	—
Nova Scotia.....	17	17	—
New Brunswick.....	15	15	15
Quebec.....	13	13	13
Ontario.....	13	18½	18½
Manitoba.....	11	11	11
Saskatchewan.....	12	12	12
Alberta.....	10	12	10
British Columbia.....	10	12	12
Yukon Territory.....	6	6	6
Northwest Territories.....	1½	1½	1½

The more important sources from which provincial revenue from motor vehicles is derived are shown in Table 7. Federal Government revenue from import duties, excise and sales taxes are given in Chapter XXI on Public Finance.

7.—Provincial Revenue from the Registration and Operation of Motor Vehicles, by Province, Years Ended Mar. 31, 1960 and 1961

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences	Public Service Vehicle Tax	Motive Fuel Taxes	Total ¹
1960	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	707,609	767,568	2,062	194,541	496	5,024,664 ²	6,894,184 ²
Prince Edward Island..	300,373	357,005	436	68,653	3,395	2,407,184 ²	3,145,872 ²
Nova Scotia.....	2,593,176	2,229,270	3	383,034	90,620	15,350,353	20,977,858
New Brunswick.....	1,998,431	1,999,497	4,865	326,809	32,759	12,011,748	16,590,945
Quebec.....	18,192,618	15,407,643	51,312	3,120,615	1,100,594	93,619,343	132,686,692
Ontario.....	27,848,971	29,928,855	56,794	2,985,339	3,416,077	158,446,490	225,505,015
Manitoba.....	3,294,013	2,834,331	6,480	803,862	55,701	15,174,459	22,663,553
Saskatchewan.....	3,105,493	3,500,797	4	432,793	—	20,633,494	28,487,848
Alberta.....	4,681,784	6,675,980	5	244,849	146,935	24,960,299	37,704,606
British Columbia.....	8,400,671	4,978,540	18,510	578,319	601,646	28,351,287	43,211,182
Yukon and N.W.T.....	49,182	67,334	44	21,960	34,744	247,025	433,046
Canada, 1960.....	71,172,121	68,746,825	140,503⁶	9,160,774	5,482,947	376,226,346²	538,300,801²
1961	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	813,750	958,823	2,107	220,871	582	5,857,538 ²	8,092,857
Prince Edward Island..	330,788	375,793	478	73,184	2,927	2,421,992	3,215,191
Nova Scotia.....	2,693,148	2,388,834	3	403,218	139,053	15,844,531	21,835,011
New Brunswick.....	2,140,808	2,040,710	4,414	360,901	..	12,685,992	17,480,898
Quebec.....	19,602,459	16,295,984	52,612	3,304,166	1,200,335	100,230,894	141,872,093
Ontario.....	28,891,414	30,614,958	94,990	3,043,869	3,392,092	164,454,632	233,360,354
Manitoba.....	3,502,285	3,102,563	6,129	121,956	60,878	16,107,024	23,434,947
Saskatchewan.....	3,236,301	3,435,876	4	438,947	—	21,687,019	29,630,077
Alberta.....	4,950,929	7,092,207	5	237,006	171,988	26,370,035	39,887,262
British Columbia.....	8,975,681	7,728,477	18,316	1,118,683	291,732	30,149,973	49,033,262
Yukon and N.W.T.....	55,277	79,960	59	26,340	26,503	290,091	496,628
Canada, 1961.....	75,195,840	74,114,185	179,105⁶	9,349,141	5,286,096⁶	396,099,721	568,338,580

¹ Includes other items not shown such as transfer of motor vehicles, garage and service station licences, and fines for infractions of motor vehicle laws. ² Includes commissions allowed to gasoline agents and refunds.

³ Included with other motor vehicles.

⁴ Included with miscellaneous revenues and therefore in total. ⁵ In-

cluded with passenger automobiles.

⁶ Not complete.

Sales of Motive Fuels.—It is the intention here to provide estimates of the total amount of motive fuel used by motor vehicles on Canadian public roads only. As the information is not available precisely in accordance with the concept, it has been necessary to approach the objective by the process of eliminating the amount of motive fuel used for other purposes. From the total gross sales, the following are subtracted to obtain sales on which the full rate of tax is paid: tax exempt sales to the Federal Government and other consumers, exports, and sales on which refunds are paid. The resulting data, which are net sales, are considered to be equivalent to the actual amount of motive fuel used on Canadian public highways. Although there is included in net sales an undetermined amount of motive fuel which is taxable but not used on the public highways, including in some provinces aviation gasoline, turbo fuel and motive fuels consumed by power boats, the total effect of this is considered to be insignificant.

Data for gasoline and diesel oil are shown separately in Table 8. Liquefied petroleum gases are included with gasoline. The consumption of taxable gasoline, which is used almost entirely for automotive purposes, rose 5.3 p.c. to 3,017,000,000 gal. in 1960. Net sales of diesel oil in 1960 increased by 7.3 p.c. to 129,000,000 gal.

8.—Sales of Motive Fuels, by Province, 1956-60

Province or Territory	1956 ¹	1957	1958	1959	1960
GASOLINE AND LIQUEFIED PETROLEUM GASES					
	gal.	gal.	gal.	gal.	gal.
Newfoundland.....	24,242,230	25,526,674	28,026,795	30,443,020	35,550,628
Prince Edward Island ..	14,325,008	14,293,703	15,152,909	17,854,271	17,872,406
Nova Scotia.....	91,177,927	91,852,532	99,662,302	104,250,854	108,488,604
New Brunswick.....	81,177,905	83,717,829	95,150,403	101,261,096	105,835,219
Quebec.....	611,828,946	660,810,503	721,348,397	755,247,041	819,290,839
Ontario.....	1,138,568,793	1,237,723,056	1,265,797,122	1,340,853,693	1,402,538,126
Manitoba.....	209,714,027	219,559,349	225,700,542	225,912,673	239,928,353
Saskatchewan.....	269,661,603	280,457,734	286,607,918	283,963,876	293,209,628
Alberta.....	383,099,186	403,500,735	442,191,585	474,001,753	513,417,285
British Columbia.....	298,957,204	324,972,114	325,269,939	345,370,730	368,535,669
Yukon and N.W.T.....	4,245,811 ²	4,734,949 ²	8,939,770	11,518,629	9,756,248
Totals, Gross Sales.....	3,178,065,069	3,349,209,171	3,544,856,742	3,690,678,245	3,921,523,005
Refunds and exemptions ..	721,076,713	723,118,141	812,898,257	826,000,245	904,702,945
Totals, Net Sales.....	2,456,988,356	2,626,091,030	2,731,958,485	2,864,678,000	3,016,820,060
DIESEL OIL					
	gal.	gal.	gal.	gal.	gal.
Totals, Net Sales.....	70,779,820	92,332,457	95,479,919	120,129,508	128,954,900

¹ Includes exports.

² Yukon only.

Motor Carriers—Freight.*—Statistics of the common carrier segment of the inter-city and rural motor carrier industry have been collected on a continuing basis since 1941. However, as little capital is required to enter the trucking business, many marginal operators are associated with the industry and the large turnover and numerous changes each year have created many problems in the collection of statistics, although these are gradually being overcome. Statistics of contract carriers were collected for the first time in 1958. Commencing in 1960, the statistics of household goods movers, formerly included with motor carriers—freight, have been compiled separately and are now presented in Table 11, p. 790.

* Statistics are given in more detail in DBS annual report *Motor Carriers—Freight* (Catalogue No. 53-205).

9.—Summary Statistics of Motor Carriers—Freight, 1959 and 1960

Item	Common		Contract	
	1959 ¹	1960	1959 ¹	1960
Carriers Reporting..... No.	3,565	3,410	1,428	1,582
Property Account—Fixed Assets (motor carrier business)..... \$	242,821,925	257,748,902	55,872,416	54,590,486
Operating Revenues..... \$	349,037,573	351,204,428	72,379,453	64,723,319
Freight—				
Intercity and rural..... \$	330,421,006	338,895,506	67,526,303	62,501,315
Local..... \$	8,268,280	5,155,549	2,603,850	1,045,555
Other..... \$	10,348,287	7,153,373	2,249,300	1,176,449
Operating Expenses..... \$	321,448,013	332,685,794	65,671,286	57,771,713
Maintenance..... \$	46,101,792	46,443,474	11,167,255	9,885,015
Wages of drivers and helpers..... \$	71,499,194	69,980,465	15,655,190	12,512,268
Other transportation expense ² \$	126,656,410	132,754,005	27,732,470	25,700,097
Licence expense..... \$	10,358,482	11,465,969	2,257,633	2,194,374
Administration and general..... \$	66,832,135	72,041,881	8,858,738	7,479,959
Net Operating Revenues..... \$	27,589,560	18,518,634	6,708,167	6,951,606
Fuel Consumed—				
Gasoline..... '000 gal.	82,145	81,268	23,441	20,349
Diesel oil..... "	20,337	25,693	3,029	4,016
Liquefied petroleum gases..... "	37	31	113	164
Employees—				
Average employed during year..... No.	30,254	29,000	5,576	4,178
Total salaries and wages..... \$	121,676,514	121,373,312	21,851,641	16,838,920
Working proprietors..... No.	3,040	2,537	1,174	1,313
Withdrawals of working proprietors..... \$	8,562,946	7,691,936	3,971,586	4,551,451
Equipment—				
Trucks with gasoline engines..... No.	11,524	11,118	3,736	3,317
Trucks with diesel engines..... "	183	205	81	162
Road tractors with gasoline engines..... "	7,499	7,323	1,627	1,253
Road tractors with diesel engines..... "	1,975	2,605	323	344
Semi-trailers..... "	14,065	15,453	2,363	1,968
Trailers..... "	788	527	235	151

¹ Includes household goods movers; see text preceding table.

² Includes fuel, fuel taxes, rents and depreciation.

10.—Statistics of Motor Carriers—Freight, classified by Type and Revenue Group, 1960

Item	Carriers with Annual Gross Revenue of—			
	Over \$500,000	\$100,000 to \$499,999	\$20,000 to \$99,999	\$19,999 or Under
Common Carriers				
Carriers Reporting..... No.	126	228	584	2,472
Property Account—Fixed Assets (motor carrier business)..... \$	181,354,138	37,620,999	21,340,254	17,433,511
Operating Revenues..... \$	257,734,802	48,508,452	26,012,986	18,948,188
Freight..... \$	252,907,039	47,109,844	25,509,964	18,524,208
Other..... \$	4,827,763	1,398,608	503,022	423,980
Operating Expenses..... \$	249,126,181	47,000,324	23,050,348	13,508,941
Net Operating Revenues..... \$	8,608,621	1,508,128	2,962,638	5,439,247
Fuel Consumed—				
Gasoline..... '000 gal.	50,166	13,052	9,224	8,826
Diesel oil..... "	21,271	3,271	989	62
Liquefied petroleum gases..... "	20	1	10	—
Employees—				
Average employed during year..... No.	21,591	4,147	2,320	942
Salaries and wages..... \$	95,292,968	16,809,375	7,053,804	2,217,165
Working proprietors..... No.	2	36	461	2,038
Withdrawals of working proprietors..... \$	13,500	240,843	2,384,948	5,052,645

10.—Statistics of Motor Carriers—Freight, classified by Type and Revenue Group, 1960
—concluded

Item	Carriers with Annual Gross Revenue of—			
	Over \$500,000	\$100,000 to \$499,999	\$20,000 to \$99,999	\$19,999 or Under
Contract Carriers				
Carriers Reporting..... No.	18	100	383	1,081
Property Account—Fixed Assets (motor carrier business)..... \$	16,266,363	16,076,149	14,770,965	7,477,009
Operating Revenues..... \$	18,911,273	19,324,009	16,983,390	9,504,647
Freight..... \$	18,477,818	18,885,075	16,778,750	9,405,227
Other..... \$	433,455	438,934	204,640	99,420
Operating Expenses..... \$	18,217,688	18,130,013	14,825,721	6,598,291
Net Operating Revenues..... \$	693,585	1,193,996	2,157,669	2,906,356
Fuel Consumed—				
Gasoline..... '000 gal.	4,125	5,626	6,262	4,334
Diesel oil..... "	1,853	1,484	666	12
Liquefied petroleum gases..... "	—	12	8	144
Employees—				
Average employed during year..... No.	1,187	1,378	1,229	384
Salaries and wages..... \$	5,651,941	5,879,160	4,261,292	1,046,527
Working proprietors..... No.	—	23	283	1,007
Withdrawals of working proprietors..... \$	—	167,478	1,674,270	2,709,703

Household Goods Movers and Storage Operators.—Statistics of household goods movers and storage operators, summarized in Table 11, are presented separately for the first time. Before 1960, these figures were included with those of either motor carriers—freight or warehousing, depending upon the predominant source of operating revenues of the companies concerned.

11.—Summary Statistics of Household Goods Movers and Storage Operators, 1960

Item	Amount	Item	Amount
Companies Reporting..... No.	163	Operating Expenses—concluded	
Investment in Land, Warehouses, Vehicles, etc..... \$	18,016,538	Storage expenses..... \$	2,384,414
Revenues..... \$	30,962,777	Other operating expenses..... \$	9,663,788
Cartage..... \$	21,882,082	Net Operating Revenues..... \$	638,728
Storage..... \$	4,192,781	Employees—	
Packing..... \$	3,116,592	Average employed during year... No.	3,658
Other..... \$	1,771,322	Salaries and wages..... \$	13,701,905
Operating Expenses..... \$	30,324,049	Storage Capacity—	
Maintenance..... \$	2,596,008	Household goods..... cu. ft.	27,372,708
Salaries and wages (charged to operations)..... \$	9,925,366	Other..... "	1,793,310
Cartage expenses..... \$	5,754,473	Vehicles—	
		Trucks..... No.	1,302
		Tractors..... "	650
		Semi-trailers..... "	647
		Trailers..... "	40

Passenger Buses.*—The operations of motor carrier companies predominantly engaged in passenger bus service are summarized in Tables 12 and 13. Data refer to the for-hire segment of the industry and only those firms engaged in intercity and rural operations and having an annual gross revenue of \$6,000 or over are covered. Operators predominantly involved in the provision of charter or school bus service are not included.

* Statistics are given in more detail in DBS annual report *Passenger Bus Statistics* (Catalogue No. 53-215).

12.—Summary Statistics of Intercity and Rural Passenger Bus Companies, 1957-60

NOTE.—Only carriers with an annual gross revenue of \$6,000 or over are included.

Item		1957	1958	1959	1960
Carriers Reporting	No.	136	154	162	162
Property Account—Fixed Assets	\$	57,834,061	59,213,624	66,083,872	65,351,765
Revenues	\$	47,250,757	46,787,640	49,131,642	51,076,097
Regular Passenger Service—					
Intercity and rural.....	\$	39,277,877	37,930,050	40,275,902	41,773,022
Urban and suburban.....	\$	1,285,710	1,771,348	983,739	895,396
Chartered service.....	\$	3,219,334	3,641,525	3,966,249	4,202,019
Other transportation revenue.....	\$	3,467,836	3,444,717	3,905,752	4,205,660
Operating Expenses	\$	43,404,424	43,005,593	44,945,424	46,624,230
Maintenance.....	\$	10,078,321	9,172,354	8,979,538	9,300,151
Wages and bonuses of drivers and helpers.....	\$	9,808,732	10,470,104	11,246,010	11,791,201
Other transportation expenses.....	\$	10,867,088	10,213,088	10,634,177	10,510,437
Operating taxes and licences.....	\$	3,571,718	3,569,911	3,934,147	4,175,011
Other operating expenses.....	\$	9,078,565	9,580,136	10,151,552	10,847,430
Net Operating Revenues	\$	3,846,333	3,782,047	4,186,218	4,451,867
Traffic and Employees—					
Passengers—					
Regular Routes—					
Intercity and rural.....	No.	54,447,010	51,578,248	53,807,135	55,592,546
Urban and suburban.....	"	13,304,475	12,581,592	6,910,905	7,201,426
Special and chartered service.....	"	2,650,478	4,696,157	4,788,193	5,786,121
Bus Miles—					
Regular Routes—					
Intercity and rural.....	No.	83,898,345	83,319,763	86,694,483	87,880,424
Urban and suburban.....	"	3,787,702	4,219,187	2,405,350	2,401,113
Special and chartered service.....	"	5,702,492	6,066,251	6,297,288	7,024,473
Gasoline consumed.....	gal.	8,578,183	6,903,530	6,028,607	5,740,358
Diesel oil consumed.....	"	5,626,623	7,012,014	7,892,289	8,579,945
Employees—					
Average employed during year.....	No.	5,326	5,156	5,062	5,110
Total salaries and wages.....	\$	19,355,124	20,333,995	21,329,084	22,043,886
Working proprietors.....	No.	66	55	66	74
Withdrawals of working proprietors.....	\$	184,065	187,797	215,256	209,737
Equipment—					
Buses.....	No.	2,115	2,300	2,367	2,388
Gasoline.....	"	1,360	1,432	1,389	1,347
Diesel.....	"	766	868	978	1,041

13.—Statistics of Intercity and Rural Passenger Bus Companies classified by Revenue Group, 1960

Item		Companies with Annual Gross Revenue of —		
		\$100,000 or More	\$20,000 to \$99,999	\$6,000 to \$19,999
Carriers Reporting	No.	47	57	58
Property Account—Fixed Assets	\$	61,249,150	3,360,165	742,450
Revenues	\$	47,580,590	2,816,389	679,118
Passenger.....	\$	43,649,272	2,572,606	648,559
Other.....	\$	3,931,318	243,783	30,559
Operating Expenses	\$	43,347,735	2,695,431	581,064
Net Operating Revenues	\$	4,232,855	120,958	98,054
Traffic—				
Passengers.....	No.	59,848,227	7,145,205	1,586,561
Bus miles.....	"	89,020,482	5,908,146	2,377,382
Gasoline consumed.....	gal.	4,438,428	1,001,969	299,961
Diesel oil consumed.....	"	8,528,897	40,899	10,149
Employees—				
Average employed during year.....	No.	4,725	326	59
Salaries and wages.....	\$	20,906,053	1,011,263	126,570

Motor Transport Traffic.*—Surveys of motor transport traffic in all provinces were placed on a continuing basis in 1957. Approximately 3 p.c. of total registrations were sampled for surveys of truck operations during each quarter of 1960. Each quarterly sample was spread over three survey weeks with one-third of the sample being used for a seven-day period (Sunday through Saturday) per month.

Excluding vehicles that do not perform normal transportation services, such as cranes, tow trucks, road building equipment, etc., the average number of trucks licensed in Canada during the year 1960 was 909,400. Of these, 6.0 p.c. were for-hire carriers, 20.4 p.c. were private intercity trucks, 39.8 p.c. were private trucks operated predominantly within urban areas, and 33.7 p.c. were farm trucks. Almost one-third of the total number were registered in Ontario and one-half were registered in the two provinces of Ontario and Quebec.

14.—Average Truck Population, by Type of Operation and Province, 1959 and 1960

Type of Operation	Atlantic Provinces	Quebec	Ontario	Manitoba	Saskatch- ewan	Alberta	British Columbia	Canada
	No.	No.	No.	No.	No.	No.	No.	No.
1959								
For-hire.....	2,587	13,968	19,755	1,387	1,830	9,000	5,968	54,495
Private—								
Intercity.....	37,123	33,927	71,447	3,063	11,813	17,661	36,281	211,315
Urban.....	17,448	74,109	129,087	22,856	9,657	22,707	41,918	317,782
Farm.....	13,879	35,760	63,326	31,781	80,560	66,972	12,605	304,883
Totals, 1959.....	71,037	157,764	283,615	59,087	103,860	116,340	96,772	888,475
1960								
For-hire.....	2,075	13,700	20,741	1,500	1,600	9,400	6,000	55,016
Private—								
Intercity.....	36,262	29,353	61,956	2,700	8,618	18,760	28,270	185,919
Urban.....	21,971	86,947	137,550	23,700	12,782	25,340	53,555	361,845
Farm.....	11,692	35,500	62,253	32,600	81,400	71,000	12,175	308,620
Totals, 1960.....	72,000	165,500	282,500	60,500	104,400	124,500	100,000	909,400

Canadian registered trucks travelled 6,432,000,000 miles in Canada during 1960, of which mileage 22 p.c. was accounted for by for-hire trucks, 34 p.c. by private intercity vehicles, 30 p.c. by urban trucks and 14 p.c. by farm trucks.

For-hire trucks averaged 193,700 net ton-miles per vehicle and, although amounting to only 6.1 p.c. of total registrations, they accounted for 66 p.c. of the total net ton-miles performed by all commercial trucks in Canada, a result of the comparatively high average yearly mileage of for-hire trucks and also of the heavier average load carried (10.3 tons as compared with an average of 5.0 tons for all trucks). The predominance of heavier vehicles in the for-hire group also explains the low mileage per gallon of gasoline of 6.1 as compared with an average of 9.8 for all vehicles.

* Statistics are given in more detail in DBS annual reports *Motor Transport Traffic Statistics* for Canada and the provinces (Catalogue Nos. 53-207—53-214).

15.—Summary Statistics of Truck Traffic, by Type of Operation, 1959 and 1960

Year and Item		For-Hire	Private			Total
			Intercity	Urban	Farm	
1959						
Miles per gallon of gasoline.....	No.	6.1	10.5	11.2	12.9	9.8
Average weight of goods carried.....	ton	10.3	3.9	1.6	1.3	5.0
Average net ton-miles per truck.....	No.	193,700	16,400	4,800	1,200	17,900
Capacity utilized.....	p.c.	57.7	38.4	33.6	23.9	47.6
Average gross ton-miles per truck.....	No.	393,600	51,400	20,000	7,500	46,100
Milage Travelled—		'000,000				
Newfoundland.....	miles	4.8	35.8	20.0	4.1	64.7
Prince Edward Island.....	"	1.8	14.4	3.5	11.4	31.1
Nova Scotia.....	"	13.4	128.0	44.7	23.3	209.4
New Brunswick.....	"	10.0	108.0	29.8	25.5	173.3
Quebec.....	"	291.5	477.6	532.1	113.3	1,414.5
Ontario.....	"	555.5	765.5	765.4	200.1	2,286.5
Manitoba.....	"	66.2	37.2	165.1	79.2	347.7
Saskatchewan.....	"	73.2	129.1	43.0	193.0	438.3
Alberta.....	"	253.2	171.7	116.6	189.2	730.7
British Columbia.....	"	110.8	346.8	227.0	51.3	735.9
1960						
Miles per gallon of gasoline.....	No.	6.0	9.9	11.0	12.7	9.6
Average weight of goods carried.....	ton	10.1	4.2	1.7	1.4	5.0
Average net ton-miles per truck.....	No.	181,500	18,200	4,900	1,500	17,200
Capacity utilized.....	p.c.	56.8	40.0	34.4	27.1	47.4
Average gross ton-miles per truck.....	No.	407,600	54,600	19,700	7,300	46,500
Milage Travelled—		'000,000				
Newfoundland.....	miles	2.4	35.8	24.3	2.5	65.0
Prince Edward Island.....	"	1.0	17.0	3.3	8.0	29.3
Nova Scotia.....	"	13.3	116.6	43.8	15.3	189.0
New Brunswick.....	"	12.2	97.7	37.4	17.4	164.7
Quebec.....	"	288.7	401.2	542.6	122.7	1,455.2
Ontario.....	"	526.3	662.1	763.4	189.7	2,131.5
Manitoba.....	"	77.3	40.2	171.8	81.2	370.6
Saskatchewan.....	"	60.3	95.2	62.5	227.7	445.7
Alberta.....	"	255.4	170.9	126.5	255.7	808.5
British Columbia.....	"	111.5	225.2	238.8	43.1	618.6

Urban Transit Systems.—The collection of statistical information on urban transit systems has been extensively reorganized in the past few years. Because of major changes made in the types of vehicles used for mass passenger movement in urban centres, the statistical series that began with the financial and operating statistics of electric railways and later included their motor bus and trolley coach lines, became quite inadequate. The current series, which was started in 1956, includes operations of motor buses, trolley coaches, streetcars and subway cars carrying passengers in urban and suburban service.

16.—Summary Statistics of Urban Transit Systems, 1957-60

Item		1957	1958	1959	1960
Passengers Carried¹.....	No.	1,125,608,597	1,079,712,025	1,056,812,775	1,029,305,402
Motor bus.....	"	589,062,762	603,090,330	637,996,304	645,353,267
Trolley coach.....	"	235,768,206	214,246,021	201,388,376	191,202,462
Streetcar.....	"	256,189,707	218,413,895	173,224,683	148,863,223
Subway car.....	"	36,579,014	35,932,278	35,869,394	34,663,146
Chartered.....	"	8,008,908	8,029,501	8,334,018	9,223,304

¹ Initial fares paid; excludes transfers.

16.—Summary Statistics of Urban Transit Systems, 1957-60—concluded

Item		1957	1958	1959	1960
Vehicle-Miles Run.....	No.	204,031,286	199,480,833	200,085,927	200,099,078
Motor bus.....	"	120,789,481	122,489,063	130,122,179	133,179,494
Trolley coach.....	"	37,453,599	36,878,121	35,874,081	35,136,724
Streetcar.....	"	36,371,275	31,029,013	24,676,511	22,093,057
Subway car.....	"	6,984,792	6,921,792	6,969,728	7,053,302
Chartered.....	"	2,432,139	2,162,844	2,443,428	2,636,501
Fuel Consumed—					
Diesel oil.....	gal.	10,980,414	12,719,288	15,071,113	16,847,010
Gasoline.....	"	14,024,296	12,004,077	11,083,205	9,939,892
Liquid petroleum gases.....	"	298,114	284,219	290,166	272,157
Passenger Vehicles in Service.....	No.	7,156	7,070	7,268	7,180
Motor bus.....	"	4,514	4,630	5,030	4,998
Trolley coach.....	"	1,221	1,221	1,221	1,175
Streetcar.....	"	1,287	1,083	877	867
Subway car.....	"	134	136	140	140

17.—Financial Statistics of Urban Transit Systems, 1957-60

Item		1957	1958	1959	1960
Total assets.....	\$	438,141,862	445,930,475	463,001,240	475,888,063
Long-term debt.....	\$	128,977,536	221,357,256	287,927,330	286,602,882
Capital stock and surplus.....	\$	141,195,724	159,391,975	102,552,156	116,934,953
Operating revenues.....	\$	133,039,879	133,732,764	140,195,856	140,848,593
Operating expenses.....	\$	127,561,604	129,625,050	134,917,105	135,980,728
Ratio of expenses to revenues.....	p.c.	95.88	96.93	96.23	96.54
Employees.....	No.	19,550	19,110	18,892	18,549
Salaries and wages.....	\$	76,340,037	78,734,325	82,209,754	84,697,981

18.—Passengers, Employees and Others Killed or Injured on Urban Transit Systems, by Cause of Accident and Equipment Involved, 1960

Item	Passengers		Employees		Others		Total	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Cause of Accident—	No.	No.	No.	No.	No.	No.	No.	No.
Collision.....	—	295	1	29	32	632	33	956
Boarding (excluding door accidents).....	—	319	—	12	—	—	—	331
Alighting (excluding door accidents).....	—	735	—	25	—	—	—	760
Caught or struck by doors.....	1	337	—	—	—	1	1	338
Accidents on board.....	—	1,981	—	46	—	—	—	2,027
Other.....	—	57	—	282	—	31	—	370
Totals.....	1	3,724	1	394	32	664	34	4,782
Class of Equipment Involved—								
Motor bus.....	1	2,839	—	118	27	456	28	3,413
Trolley coach.....	—	520	—	41	3	87	3	648
Streetcar.....	—	348	1	20	2	110	3	478
Other company equipment.....	—	17	—	13	—	1	—	31
No vehicle.....	—	—	—	202	—	10	—	212

Motor Vehicle Accidents.—Motorists are required by law to report accidents but complete statistics of these accidents are not available for all provinces. Statistics on all deaths from motor vehicle accidents are shown in Table 19. A direct comparison of such statistics between the provinces is of little value because of differences in size, population, motor vehicle density, etc., but, to put them on somewhat the same basis, the average number of deaths per 10,000 registered motor vehicles has been tabulated. These data still give no weight to differences in use of motor vehicles, variations in climate, road conditions, tourist cars, etc., all of which are factors in accidents.

Data presented in Table 20 relate to traffic accidents only and consequently may not be compared with figures of Table 19 which include details of fatalities occurring elsewhere than on public streets or roads.

**19.—Deaths Resulting from Motor Vehicle Traffic and Non-traffic Accidents,
by Province, 1951-60**

NOTE.—Figures for 1926-50 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
DEATHS BY PROVINCE OF OCCURRENCE											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	26	20	103	122	818	991	102	93	184	227	2,686
1952.....	25	26	115	139	931	1,067	112	131	188	223	2,957
1953.....	28	14	133	124	959	1,119	111	153	261	219	3,121
1954.....	33	14	149	131	769	1,096	132	86	215	232	2,857
1955.....	47	18	121	147	894	1,177	104	133	203	235	3,079
1956.....	46	17	150	150	1,057	1,245	160	138	269	312	3,544
1957.....	39	14	141	162	1,179	1,341	151	155	253	259	3,694
1958.....	46	20	155	156	1,106	1,150	139	139	312	287	3,510
1959.....	45	33	123	125	1,167	1,241	153	167	269	314	3,637
1960.....	45	11	165	175	1,173	1,165	126	163	303	293	3,619
DEATHS PER 10,000 REGISTERED MOTOR VEHICLES											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	12.96	11.84	9.78	14.69	16.34	8.22	5.96	4.32	7.08	7.79	9.36
1952.....	10.58	13.89	10.00	15.47	16.19	8.26	5.96	5.53	6.45	6.94	9.37
1953.....	9.47	6.90	10.26	13.20	15.52	7.96	5.45	5.94	8.19	6.28	9.10
1954.....	9.59	6.71	11.19	13.22	11.41	7.35	6.27	3.22	6.35	6.24	7.84
1955.....	11.82	8.13	8.15	13.78	12.02	7.28	4.67	4.84	5.69	5.74	7.81
1956.....	10.00	7.27	9.52	13.48	12.51	7.28	6.67	4.74	7.06	6.87	8.32
1957.....	8.13	5.90	8.58	13.88	13.08	7.48	6.13	5.16	6.24	5.27	8.23
1958.....	8.92	7.84	9.40	12.82	11.42	6.15	5.43	4.42	7.25	5.62	7.45
1959.....	8.80	12.00	6.50	9.64	11.22	6.29	5.67	5.11	5.89	5.76	7.26
1960.....	7.26	3.65	8.82	12.64	10.70	5.65	4.41	4.86	6.23	5.19	6.90

20.—Motor Vehicle Traffic Accidents, by Province, 1960

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Accidents Reported	4,409	901	8,969	6,633	66,575	87,186	12,940	12,930	20,805	26,091	390	247,829
Fatal—												
Resulting in death of one or more persons.....	43	13	139	141	727	987	104	126	224	252	7	2,763
Non-fatal—												
Resulting in injury to one or more persons.....	911	267	1,781	1,772	14,492	23,714	3,304	3,044	4,172	7,544	110	61,111
Resulting in property damage only ¹	3,455	621	7,049	4,720	51,356	62,485	9,532	9,760	16,409	18,295	273	183,955
Persons Killed	45	13	162	166	853	1,166	122	164	290	294	8	3,283
Drivers.....	9	3	49	46	2	419	49	71	106	104	4	860 ³
Passengers.....	11	4	63	58	562	352	42	61	135	103	3	1,394
Pedestrians.....	22	5	45	56	291	332	28	24	38	76	—	917
Bicyclists.....	1	—	2	6	2	41	—	5	4	9	1	69 ³
Motorcyclists and passengers.....	1	—	1	4	2	12	1	1	6	2	—	24 ³
Others.....	1	1	2	—	2	10	2	2	1	—	—	19 ³
Persons Injured	1,214	385	2,536	2,695	21,447	31,436	4,713	4,888	6,366	11,311	165	90,186
Drivers.....	250	162	819	967	2	12,616	1,738	1,897	2,253	4,049	80	24,831 ³
Passengers.....	450	178	1,055	1,171	16,556	14,420	2,115	2,528	3,199	5,613	75	47,355
Pedestrians.....	465	38	535	466	4,891	5,519	659	328	627	1,154	8	14,690
Bicyclists.....	38	9	88	77	2	1,282	167	102	153	320	1	2,237 ³
Motorcyclists and passengers.....	9	2	20	4	2	516	34	18	98	154	—	851 ³
Others.....	32	1	19	14	2	83	—	15	36	21	1	222 ³
Property Damage Caused¹ \$'000	1,858	399	3,710	3,080	..	40,067	4,976	5,398	9,486	12,388	322	81,684 ³

¹ All reported accidents are those resulting in property damage estimated at \$100 or over. ² Included with passengers in Quebec. ³ Incomplete; see footnotes 2 and 4. ⁴ Included with bicyclists in New Brunswick. ⁵ Excludes Quebec.

PART IV.—WATER TRANSPORT*

The Canada Shipping Act.—Legislation regarding all phases of shipping is consolidated in the Canada Shipping Act (RSC 1952, c. 29). Under the Act and its amendments the Parliament of Canada accepts full responsibility for the regulation of Canadian shipping.

Section 1.—Shipping Facilities and Traffic

Subsection 1.—Shipping

All Canadian waterways including canals, lakes and rivers are open on equal terms, except in the case of the coasting trade, to the shipping of all countries of the world so that the commerce of Canada is not dependent entirely upon Canadian shipping. However, a large part of the inland and coastal traffic is carried in ships of Canadian registry.

In his major policy statement in the House of Commons on May 12, 1961, the Minister of Transport announced the decision of the Government to exclude the Great Lakes and St. Lawrence River system from some of the reciprocal provisions of the British Commonwealth Merchant Shipping Agreement.

* Information and statistics dealing with this subject have been supplied as follows: aids to navigation, canals, harbours, administrative services, and marine services by the Department of Transport and the National Harbours Board; the St. Lawrence Seaway by the St. Lawrence Seaway Authority; part of the financial statistics by the Department of Public Works; shipping subsidies by the Director of Subsidized Steamship Services, Canadian Maritime Commission; and canal traffic and statistics of shipping by the Public Finance and Transportation Division, Dominion Bureau of Statistics.

Under the Agreement, all Commonwealth ships enjoy equal privileges with Canadian ships in the carriage of goods and passengers from one port in Canada to another port in Canada, commonly known as the coasting trade. Prior to the completion of the St. Lawrence Seaway most of the domestic Great Lakes traffic was moved in Canadian-registered ships and the rights of other Commonwealth ships in this trade were largely theoretical. After the Seaway was finished the intrusion of other Commonwealth ships, particularly United Kingdom ships, became a reality. The new policy gives legal recognition to a state of affairs that has prevailed in point of fact for many decades and restores the *status quo* as it existed before the advent of the Seaway.

When the statement of policy becomes translated into law, the exclusive right to carry goods and passengers between Canadian ports in the Great Lakes and the St. Lawrence River system from Havre St. Pierre westward will be restored to Canadian-registered ships.

Canadian Registry.—Under Part I of the Canada Shipping Act, ships in excess of 15 tons net register and pleasure yachts in excess of 20 tons net are required to be registered; ships of lower tonnage may be registered voluntarily, otherwise they are required to be operated under a Vessel Licence if powered by a motor of 10 hp. or more. Sect. 6 of the Act restricts ownership to British subjects or bodies corporate incorporated under the law of a country of the Commonwealth or of the Republic of Ireland, and having their principal place of business in those countries. Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships are given the general designation 'British Ship'; and a ship that should be but is not registered is not entitled to the privileges accorded to British ships. Ships in the planning stage or in course of construction may be recorded before registry by a Registrar of Shipping at one of the 75 Ports of Registry in Canada.

1.—Vessels on the Canadian Shipping Registry, by Province, as at Dec. 31, 1959-61

NOTE.—Figures for 1935-58 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Province or Territory	1959		1960		1961	
	Ships	Gross Tonnage	Ships	Gross Tonnage	Ships	Gross Tonnage
	No.	No.	No.	No.	No.	No.
Newfoundland.....	797	69,699	797	70,452	808	73,034
Prince Edward Island.....	527	15,465	581	16,643	668	17,376
Nova Scotia.....	5,607	120,098	5,858	124,288	6,055	123,386
New Brunswick.....	1,650	65,139	1,853	65,467	1,983	74,188
Quebec.....	2,394	776,998	2,511	823,177	2,546	816,325
Ontario.....	2,296	814,653	2,336	859,955	2,376	890,574
Manitoba.....	104	13,662	107	14,491	107	16,761
Saskatchewan.....	—	—	—	—	—	—
Alberta.....	11 ¹	531 ¹	11 ¹	531 ¹	11 ¹	531 ¹
British Columbia.....	6,113	592,491	6,319	601,811	6,499	617,330
Yukon Territory.....	8	3,411	8	3,411	6	1,435
Northwest Territories.....	2	2	2	2	2	2
Canada.....	19,507	2,472,147	20,381	2,580,226	21,059	2,630,940

¹ Includes N.W.T.—see footnote 2.

² Aklavik, N.W.T., closed as a port of registry Dec. 12, 1958. Ships using the Mackenzie River system are registered at Edmonton, Alta.

Shipping Traffic.—Before 1952 the only information available on shipping activity in Canada was the number and registered net tonnage of vessels operating in and out of Canadian customs ports and the tonnage of cargoes loaded and unloaded at these ports destined for or arriving from foreign countries. In 1952 the coastwise movement of cargo in and out of customs ports was reported for the first time and in January 1957 the coverage was extended to include tonnage of vessels and tons of cargo in and out of non-customs ports. Reports are not required for vessels of less than 15 registered net tons.

2.—Vessels Entered at Canadian Ports, 1951-60

NOTE.—Figures for 1929-50 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	In Foreign Service ¹		In Coasting Service		Totals	
	Vessels	Net Tons Registered	Vessels	Net Tons Registered	Vessels	Net Tons Registered
	No.	No.	No.	No.	No.	No.
1951.....	32,304	47,508,342	86,571	60,802,798	118,875	108,311,140
1952.....	33,782	52,156,098	79,722	56,776,504	113,504	108,932,602
1953.....	34,400	56,589,078	88,675	67,417,391	123,075	124,006,469
1954.....	34,079	54,767,687	84,890	64,291,085	118,969	119,058,772
1955.....	34,432	58,018,365	86,010	67,228,840	120,442	125,247,205
1956.....	35,315	63,105,100	88,640	75,220,366	123,955	138,325,466
1957.....	35,352	66,149,552	104,079	76,535,160	139,431	142,684,712
1958.....	20,710	57,738,034	100,234	76,197,625	130,944	133,935,659
1959.....	33,251	67,526,464	110,702	85,536,408	143,953	153,062,872
1960.....	33,397	74,805,002	120,125	88,493,116	153,522	163,298,118

¹ Sea-going and inland international.

3.—Vessels Entered at each of the Principal Canadian Ports, 1960

Province and Port	In Foreign Service (Sea-going and Inland International)		In Coasting Service		Totals	
	Vessels	Net Tons Registered	Vessels	Net Tons Registered	Vessels	Net Tons Registered
	No.	No.	No.	No.	No.	No.
Newfoundland¹	2,147	2,530,133	20,137	10,544,937	22,284	13,075,070
Bell Island.....	153	955,291	127	320,203	280	1,275,494
Botwood.....	58	226,829	194	105,661	252	332,490
Corner Brook.....	147	339,336	603	270,654	750	609,990
Port aux Basques.....	26	14,204	972	1,789,989	998	1,804,193
St. John's.....	787	760,744	768	463,998	1,555	1,224,742
Prince Edward Island¹	47	52,277	336	351,305	383	403,582
Charlottetown.....	17	22,131	227	261,383	244	283,514
Nova Scotia¹	4,177	7,680,677	5,699	5,383,342	9,876	13,064,019
Halifax.....	1,397	5,415,210	849	1,063,104	2,246	6,478,314
Sydney.....	164	359,386	677	1,229,086	841	1,588,472
Hantsport.....	211	661,411	7	8,908	218	670,319
North Sydney.....	280	56,847	1,453	1,819,242	1,743	1,876,089
Baddeck.....	24	53,815	291	71,792	315	125,607
New Brunswick¹	3,641	2,671,163	2,959	1,851,138	6,600	4,522,301
Saint John.....	591	2,321,448	878	1,267,361	1,469	3,588,809
Bathurst.....	10	11,354	125	75,955	135	87,309
Dalhousie.....	66	178,803	4	6,377	70	185,180
Quebec¹	5,350	20,688,424	25,462	19,140,708	30,812	39,829,132
Montreal.....	2,761	9,678,759	3,742	4,842,108	6,503	14,520,867
Sept Îles.....	384	2,768,660	1,763	1,694,412	1,847	4,663,072
Quebec.....	801	3,655,964	1,897	2,591,736	2,698	6,247,700
Port Alfred.....	401	1,487,485	754	540,906	1,155	2,028,391
Trois Rivières.....	435	1,523,044	2,142	1,644,553	2,577	3,167,597
Sorel.....	117	537,182	570	772,826	687	1,310,008
Ontario¹	7,225	17,110,212	11,867	18,375,871	19,092	35,486,083
Port Arthur.....	391	1,859,067	755	2,699,025	1,146	4,558,092
Hamilton.....	946	4,240,580	485	846,579	1,431	5,087,159
Sault Ste. Marie.....	431	1,894,016	745	974,037	1,176	2,868,053
Toronto.....	1,166	2,565,102	969	1,573,142	2,135	4,138,244

¹ Includes small ports not shown separately.

3.—Vessels Entered at each of the Principal Canadian Ports, 1960—concluded

Province or Territory and Port	In Foreign Service (Sea-going and Inland International)		In Coasting Service		Totals	
	Vessels	Net Tons Registered	Vessels	Net Tons Registered	Vessels	Net Tons Registered
	No.	No.	No.	No.	No.	No.
Ontario—concluded						
Port William.....	242	725,059	658	1,834,581	900	2,559,640
Sarnia.....	387	1,097,727	908	1,498,359	1,295	2,596,086
Port Colborne.....	194	486,258	370	939,279	564	1,425,537
Windsor.....	1,644	831,314	321	568,206	1,965	1,399,520
Kingston.....	72	94,332	488	667,325	560	761,657
Clarkson.....	15	28,636	273	590,870	246	619,506
Prescott.....	83	145,292	131	372,001	261	517,293
Pictou.....	48	71,558	139	395,104	187	469,662
Midland.....	35	82,004	123	440,794	158	522,798
Thorold.....	99	292,421	331	609,223	430	901,644
Michipicoten Harbour.....	43	172,878	64	247,428	107	420,306
Little Current.....	128	329,017	166	121,499	294	450,516
Port Credit.....	36	196,361	130	169,411	166	365,772
Manitoba (Churchill).....	52	248,530	7	8,164	59	256,694
British Columbia¹.....	10,756	23,810,930	53,618	32,808,166	64,374	56,619,096
Vancouver.....	3,379	8,519,004	20,825	13,196,401	24,204	21,715,405
New Westminster.....	763	2,218,430	4,201	1,614,532	4,964	3,832,962
Victoria.....	2,330	5,719,899	2,901	1,657,837	5,231	7,377,736
Powell River.....	212	260,242	2,368	555,128	2,580	1,815,370
Port Alberni.....	248	1,002,990	540	312,730	788	1,315,720
Nanaimo.....	466	1,404,856	5,223	8,910,992	5,689	10,315,848
Ocean Falls.....	53	184,615	669	620,883	722	785,498
Prince Rupert.....	783	579,502	821	459,603	1,604	1,039,195
Britannia Beach.....	423	315,130	990	250,210	1,413	565,340
Kitimat.....	71	337,993	197	101,270	268	439,263
Northwest Territories.....	2	12,656	40	29,485	42	42,141
Totals.....	33,397	74,805,002	120,125	88,493,116	153,522	163,298,118

¹ Includes small ports not shown separately.

4.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1959 and 1960

Province and Port	1959			1960		
	Loaded	Unloaded	Total	Loaded	Unloaded	Total
	tons	tons	tons	tons	tons	tons
Newfoundland¹.....	4,489,106	2,602,247	7,091,353	5,661,840	2,649,071	8,310,911
Bell Island.....	2,361,497	17,419	2,378,916	3,147,675	54,003	3,201,678
Botwood.....	326,876	132,913	459,789	377,027	140,491	517,518
Corner Brook.....	413,314	776,132	1,189,446	435,352	1,032,291	1,467,643
Port aux Basques.....	54,540	297,875	352,415	32,723	293,744	326,467
St. John's.....	108,509	659,725	768,234	114,097	587,933	702,030
Prince Edward Island¹.....	172,956	293,783	466,739	176,896	432,278	609,174
Charlottetown.....	94,668	256,508	351,176	95,037	350,763	445,800
Nova Scotia¹.....	10,099,595	5,071,299	15,170,894	9,400,453	5,696,659	15,097,112
Halifax.....	4,087,887	3,309,269	7,397,156	3,962,480	3,641,482	7,603,962
Sydney.....	1,812,607	1,412,084	3,224,691	1,599,715	1,721,968	3,321,683
Hantsport.....	2,617,862	15	2,617,877	2,189,015	969	2,189,984
North Sydney.....	379,480	30,407	409,887	393,898	28,113	422,011
Baddeck.....	400,889	154	401,043	329,399	172	329,571

¹ Includes small ports not shown separately.

4.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1959 and 1960—concluded

Province or Territory and Port	1959			1960		
	Loaded	Unloaded	Total	Loaded	Unloaded	Total
	tons	tons	tons	tons	tons	tons
New Brunswick¹	1,634,583	1,815,161	3,449,744	2,342,627	3,307,582	5,650,209
Saint John.....	1,158,955	1,269,157	2,427,212	1,785,931	2,667,977	4,453,908
Bathurst.....	17,060	224,606	241,666	16,099	283,017	299,116
Dalhousie.....	156,932	15,051	171,983	208,348	5,013	213,361
Quebec¹	39,982,469	22,705,911	53,688,380	27,259,149	23,671,731	50,930,880
Montreal.....	7,605,087	10,356,477	17,961,564	7,345,786	10,542,122	17,887,908
Sept Îles.....	14,627,969	401,752	15,029,721	11,001,132	414,960	11,506,092
Quebec.....	1,043,505	3,225,750	4,269,255	1,045,081	3,185,090	4,230,171
Port Alfred.....	629,491	2,314,286	2,943,777	563,266	3,068,796	3,632,062
Trois Rivières.....	740,371	2,031,118	2,771,489	714,083	2,038,332	2,752,415
Sorel.....	1,194,988	1,742,060	2,937,048	976,071	1,743,965	2,720,036
Ontario¹	23,928,607	31,437,441	55,366,048	23,295,384	31,320,528	54,615,912
Port Arthur.....	8,659,708	332,009	8,991,717	8,070,168	256,969	8,327,137
Hamilton.....	444,834	7,041,204	7,486,038	563,462	7,586,561	8,150,023
Sault Ste. Marie.....	525,997	4,051,719	4,576,816	526,419	4,176,918	4,703,337
Toronto.....	808,518	3,960,590	4,769,108	815,111	3,743,963	4,559,074
Fort William.....	3,098,761	3,001,471	3,700,232	2,935,424	843,861	3,779,275
Sarnia.....	1,800,049	1,231,325	3,031,374	1,768,413	1,526,888	3,295,301
Port Colborne.....	1,523,471	1,811,947	3,335,418	1,492,026	1,111,856	2,603,882
Windsor.....	647,232	981,808	1,629,040	430,891	932,315	1,363,206
Kingston.....	711,467	1,008,538	1,720,005	447,816	837,531	1,285,347
Clarkson.....	422,865	418,908	841,473	333,026	907,061	1,240,087
Prescott.....	562,262	957,703	1,519,965	318,617	732,285	1,100,882
Pictou.....	878,056	43,390	921,446	972,668	67,104	1,029,772
Midland.....	10,174	1,242,084	1,252,238	986,567	987,056	987,056
Thorold.....	199,958	759,909	959,867	205,982	679,539	885,521
Michipicoten Harbour.....	1,091,194	197,691	1,288,885	750,588	111,135	861,723
Little Current.....	157,664	603,739	761,403	167,215	641,488	808,703
Port Credit.....	212,924	360,002	572,926	117,395	591,652	709,047
Manitoba (Churchill)	638,983	65,023	724,006	605,154	72,091	677,245
British Columbia¹	18,695,835	10,267,650	28,963,485	22,659,437	12,672,645	35,332,082
Vancouver.....	7,916,689	3,913,739	11,830,428	8,784,290	4,271,076	13,055,366
New Westminster.....	1,981,282	810,301	2,791,583	2,302,069	1,439,897	3,741,966
Victoria.....	864,471	600,301	1,464,772	1,088,588	745,515	1,834,103
Powell River.....	497,591	882,084	1,379,675	530,029	995,256	1,525,285
Port Alberni.....	431,745	322,166	753,911	573,206	372,412	945,618
Nanaimo.....	475,809	364,392	840,201	548,000	448,810	996,810
Ocean Falls.....	251,719	395,968	647,687	345,767	576,006	921,773
Prince Rupert.....	302,954	489,995	792,949	171,274	502,249	673,523
Britannia Beach.....	469,588	2,042	471,630	600,844	16,480	617,324
Kitimat.....	138,605	416,522	555,127	131,310	483,479	614,789
Northwest Territories	21,345	34,523	55,868	2,950	48,865	51,815
Totals	90,683,479	74,253,038	164,936,517	91,403,890	79,871,450	171,275,340

¹ Includes small ports not shown separately.

The freight movement through a large port takes a number of different forms. The overseas movement of freight loaded on and unloaded from sea-going vessels frequently constitutes a surprisingly small part of the total. Usually the volume from coasting vessels is larger. There is, as well, the in-transit movement in vessels that pass through the harbour without loading or unloading and the movement from one point to another within the harbour, which in many ports amounts to a large volume.

Since 1957, shipping statistics are available covering traffic in and out of both customs and non-customs ports. Table 5 shows the principal commodities loaded and unloaded in foreign and coastwise trade at the ten ports handling the largest cargo volumes in 1960.

5.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1960

NOTE.—Only commodities totalling over 50,000 tons are listed.

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal—					
Wheat.....	1,441,546	128,394	1,940	1,749,205	3,321,085
Crude petroleum.....	—	2,474,393	38,234	13,426	2,526,053
Petroleum oils.....	72,368	602,015	1,671,803	139,775	2,485,961
Coal, bituminous.....	—	449,206	302,016	1,124,399	1,875,621
Gasoline.....	2,848	112,429	825,806	21,586	962,669
Corn.....	134,292	240,140	3,304	19,954	397,690
Soybeans.....	154,980	112,369	—	66,244	323,593
Barley.....	78,305	—	—	212,322	290,627
Sand, gravel and stone.....	—	279	345	279,900	280,524
Sugar, raw and refined.....	26	274,467	141	—	274,634
Gypsum.....	—	13	4,875	241,774	246,662
Flaxseed.....	89,123	6,000	—	144,778	239,901
Iron ore.....	104,281	63,574	—	4,836	172,691
Flour.....	150,845	22	—	—	150,867
Autos, trucks, parts.....	1,002	103,872	596	1,092	106,562
Cement.....	4	3,659	102,101	—	105,764
Iron and steel bar, etc.....	19,318	58,866	9,181	15,410	102,775
Chemicals and chemical products.....	40,587	28,963	2,839	26,853	99,252
Oats.....	25,903	—	—	62,203	88,106
Copper, brass, bronze, etc.....	82,365	604	—	4,264	87,233
Molasses.....	—	77,690	—	—	77,690
Iron and steel scrap.....	76,199	41	—	743	76,983
Salt.....	1,170	10	—	64,847	66,027
Textile fabrics.....	1,667	52,224	—	—	53,891
Totals, Commodities Listed.....	2,476,839	4,789,230	2,963,181	4,183,611	14,412,861
Totals, All Commodities.....	3,800,382	5,868,010	3,545,404	4,674,112	17,887,908
Vancouver—					
Wheat.....	2,673,264	—	—	1,080	2,674,344
Pulpwood and chips.....	443,186	—	939,772	166,337	1,549,295
Sand, gravel and stone.....	1	32,025	5,439	1,178,690	1,216,155
Logs, posts, poles, etc.....	24,188	24,884	22,935	907,346	979,353
Lumber, timber, box, etc.....	734,799	11,662	22,995	71,057	840,513
Petroleum oils.....	16,418	87,785	650,605	3,600	758,408
Firewood and hogged fuel.....	229,421	—	398,581	8,096	636,098
Barley.....	438,757	—	—	—	438,757
Coal, bituminous.....	342,976	—	98	5,502	348,576
Gasoline.....	93,355	23,620	222,131	355	338,461
Flour.....	233,757	855	75	—	234,687
Newsprint.....	7,202	44	6,521	219,021	232,788
Flaxseed.....	172,184	—	—	—	172,184
Cement.....	3,673	1,283	3,567	119,756	128,279
Chemicals and chemical products.....	47,622	10,828	67,662	836	126,948
Sugar, raw and refined.....	—	109,443	—	—	109,443
Iron and steel bar, etc.....	13,626	86,507	5,699	80	105,912
Wood pulp.....	33,719	—	792	66,285	100,796
Rapeseed.....	92,780	—	—	—	92,780
Salt.....	—	90,346	1,388	—	91,734
Asbestos.....	18,907	43,158	910	—	62,975
Totals, Commodities Listed.....	5,619,835	522,440	2,349,170	2,748,041	11,239,486
Totals, All Commodities.....	5,986,803	914,512	2,797,487	3,356,564	13,055,366
Sept Îles—					
Iron ore.....	10,335,600	—	689,678	—	11,025,278
Petroleum oils.....	—	129,934	—	18,742	148,676
Totals, Commodities Listed.....	10,335,600	129,934	689,678	18,742	11,173,954
Totals, All Commodities.....	10,383,696	165,999	707,436	248,961	11,506,092

**5.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports
Handling the Largest Tonnages in 1960—continued**

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Port Arthur—					
Wheat.....	209,103	—	3,575,656	—	3,784,759
Iron ore.....	2,297,090	—	336,013	—	2,633,103
Barley.....	209,246	—	606,808	—	816,054
Oats.....	3,711	—	297,947	—	301,658
Flaxseed.....	41,407	—	96,809	—	138,216
Pulpwood and chips.....	96,700	—	—	—	96,700
Rye.....	54,567	—	20,839	—	75,406
Coal, bituminous.....	—	69,816	—	—	69,816
Grain screenings.....	33,594	—	32,332	—	65,926
Totals, Commodities Listed.....	2,945,418	69,816	4,966,404	—	7,981,638
Totals, All Commodities.....	2,988,572	96,413	5,081,596	160,556	8,327,137
Hamilton—					
Iron ore.....	10	3,544,355	—	246,439	3,790,804
Coal, bituminous.....	—	2,894,970	—	4,600	2,899,570
Petroleum oils.....	3,230	247,623	22,960	120,788	394,601
Sand, gravel and stone.....	—	37,250	25,524	68,246	131,020
Iron and steel bar, etc.....	109,006	11,078	5,811	159	126,054
Iron and steel scrap.....	25	95,703	—	—	95,728
Soybeans.....	110	69,833	—	—	69,943
Phosphate rock.....	—	—	—	50,362	50,362
Totals, Commodities Listed.....	112,381	6,900,812	54,295	490,594	7,558,082
Totals, All Commodities.....	229,355	7,003,276	334,107	583,285	8,150,023
Halifax—					
Crude petroleum.....	—	2,611,679	—	—	2,611,679
Gypsum.....	1,702,347	—	94,456	—	1,796,803
Petroleum oils.....	23,178	309,625	1,001,762	78,852	1,413,417
Gasoline.....	6,864	52,514	401,008	107,451	567,837
Wheat.....	266,996	—	—	85,179	352,175
Hour.....	71,842	77	3,202	2,399	77,520
Cement.....	—	87	102	56,000	56,189
Fish, fresh frozen, cured.....	5,637	73	303	47,458	53,471
Totals, Commodities Listed.....	2,076,864	2,974,055	1,500,833	377,339	6,929,091
Totals, All Commodities.....	2,407,542	3,225,538	1,554,938	415,944	7,603,962
Sault Ste. Marie—					
Coal, bituminous.....	—	1,759,489	—	—	1,759,489
Iron ore.....	—	1,234,848	—	311,565	1,546,413
Limestone.....	—	343,189	—	—	343,189
Iron, pig and bloom.....	254,485	—	6,355	—	260,840
Iron and steel bar, etc.....	110,637	3,030	90,939	60	204,666
Pulpwood and chips.....	—	—	—	185,600	185,600
Petroleum oils.....	—	49,322	—	102,832	152,154
Sand, gravel and stone.....	9,578	—	—	88,032	97,610
Gasoline.....	—	—	—	68,428	68,428
Totals, Commodities Listed.....	374,700	3,389,878	97,294	756,517	4,618,389
Totals, All Commodities.....	383,769	3,402,381	142,650	774,537	4,703,337
Toronto—					
Coal, bituminous.....	—	1,157,515	—	36,454	1,193,969
Petroleum oils.....	—	213,380	95,686	322,270	631,336
Soybeans.....	—	350,581	12,599	6,301	369,481
Limestone.....	—	—	—	366,406	366,406
Cement.....	—	—	—	241,438	241,438

5.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1960—concluded

Port and Commodity	International Seaborne Shipping		Coastwise Shipping		Total Seaborne and Coastwise
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Toronto—concluded					
Gasoline.....	—	4,800	216,900	9,009	230,709
Wheat.....	—	—	59,641	168,608	228,249
Barley.....	—	—	—	161,744	161,744
Iron and steel scrap.....	87,977	8,929	—	5,097	102,003
Sand, gravel and stone.....	—	10,020	—	87,876	97,896
Chemicals and chemical products.....	1,284	18,522	—	33,042	52,848
Totals, Commodities Listed.....	89,261	1,763,747	384,826	1,438,245	3,676,079
Totals, All Commodities.....	291,282	2,095,822	523,829	1,618,111	4,559,074
Saint John—					
Crude petroleum.....	—	1,507,986	—	—	1,507,986
Petroleum oils.....	13	155,650	462,218	237,357	855,238
Wheat.....	322,729	—	—	—	322,729
Gasoline.....	1,982	17,198	157,381	122,673	299,234
Sugar, raw and refined.....	—	220,930	—	—	220,930
Totals, Commodities Listed.....	324,724	1,901,764	619,599	360,030	3,206,117
Totals, All Commodities.....	1,096,277	2,249,272	689,654	418,705	4,453,908
Quebec—					
Petroleum oils.....	—	485,958	99,828	495,911	1,081,697
Pulpwood and chips.....	16,350	—	—	982,364	998,714
Gasoline.....	—	—	24,820	406,298	431,118
Wheat.....	137,995	551	549	139,322	278,417
Newsprint.....	233,358	—	2,240	—	235,598
Asbestos.....	217,355	—	—	196	217,551
Barley.....	34,490	—	—	150,333	184,823
Coal, bituminous.....	—	60,201	300	113,494	173,995
Oats.....	4,000	2,352	—	67,400	73,752
Corn.....	11,462	32,630	1,380	5,933	51,405
Totals, Commodities Listed.....	655,010	581,692	129,117	2,361,251	3,727,070
Totals, All Commodities.....	859,171	772,170	185,910	2,412,920	4,230,171

Subsection 2.—Harbours

Water transportation cannot be studied with any degree of completeness without taking into consideration the co-ordination of land and water transportation at many of the ports. Facilities provided to enable interchange movements include the necessary docks and wharves, some for passenger traffic but most of them for freight, warehouses for the handling of general cargo, and special equipment for such bulk freight as lumber, coal, oil and grain. Facilities may include cold storage warehouses, harbour railway and switching connections, grain elevators, coal bunkers, oil storage tanks and, in the chief harbours, dry dock accommodation.

Eight of the principal harbours of Canada are administered by the National Harbours Board. Eleven other harbours come under the supervision of the Department of Transport and are administered by commissions that include municipal as well as Federal Government appointees. In addition, there are about 300 public harbours that are under the direct

supervision of the Department of Transport. These harbours are administered under rules and regulations approved by the Governor General in Council. Harbour masters have been appointed by the Minister of Transport for 132 of these harbours, their remuneration being paid from fees levied on vessels under the terms of the Canada Shipping Act.

At most ports, in addition to the harbour facilities operated by the operating authorities, there are dock and handling facilities owned by private companies such as railway, pulp and paper, oil and sugar industries. At several of the ports there are also dry dock facilities.

National Harbours Board.—The National Harbours Board, a Crown corporation established in 1936, is charged with the administration and operation of the following properties: port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, terminal railways, etc., at the harbours of Halifax, Saint John, Chicoutimi, Quebec, Trois Rivières, Montreal, Vancouver and Churchill; grain elevators at Prescott and Port Colborne; and the Jacques Cartier Bridge at Montreal. These facilities represent a capital investment of approximately \$340,000,000. Current operating revenues and expenditures are given in Table 26, p. 818.

6.—Facilities of the Larger Harbours Administered by the National Harbours Board, as at Dec. 31, 1961

NOTE.—The facilities at these ports include those under the control of other agencies as well as those of the National Harbours Board.

Item	Halifax	Saint John	Quebec	Trois Rivières	Montreal	Vancouver
Minimum depth of approach channel..... ft.	51	30	35	35	35	39
Harbour railway..... miles	31	64	23	5	62	75
Piers, wharves, jetties, etc. No.	88	34	43	21	129	108
Length of berthing..... ft.	35,445	24,550	31,300	9,188	66,351	36,562
Transit shed floor space.....sq. ft.	1,464,774	1,000,000	707,000	357,200	3,048,000	1,552,600
Cold storage warehouse capacity.....cu. ft.	1,719,000	900,000	500,000	—	2,900,000	3,633,297
Grain Elevators—						
Capacity.....bu.	4,152,500	3,000,000	6,000,000 ¹	7,300,000	16,762,000	21,775,500
Loading rate.....bu. per hr.	90,000	150,000	90,000	40,000	736,000	280,000
Floating crane capacity..... tons	100	65	75	—	90	35
Coal dock storage capacity.....	32,000	—	215,000	300,000	1,215,000	—
Oil tank storage capacity..... gal.	206,013,000	35,893,000	150,949,000	9,327,000	1,039,054,590	234,589,277
Locomotive crane capacity (two)..... tons	—	25	—	—	—	—
Electric luffing crane capacity (two)..... tons per hr.	—	180 ²	—	—	—	—

¹ Includes a 3,000,000-bu. grain storage shed connected with the elevator.

² Sugar.

Subsection 3.—Canals

The canals and canalized waters of Canada under the jurisdiction of the Department of Transport, together with those under the jurisdiction of the St. Lawrence Seaway Authority, comprise a series of waterways providing navigation for 1,875 miles inland from salt water.

The canals included under the two classifications—Seaway canals and Department of Transport canals—are listed in Table 7 with their locations, lengths and lock complement. In addition to these, the federal Department of Public Works administers the St. Andrew's

Lock (length, width and draught, respectively, 215, 45 and 17 feet) on the Red River at Selkirk, Man., and the lock at Poupore, Que. A few small locks are operated by provincial authorities.

During 1960, 52,947,000 tons of freight and 29,629 vessels passed through the canals as compared with 51,076,132 tons of freight and 30,559 vessels during 1959. In addition to freight and passenger vessels, thousands of pleasure craft are locked through the canals. Vessels locking at Sault Ste. Marie during 1960 carried 171,932 passengers as compared with 193,721 in 1959.

7.—Lengths of Channels and Dimensions of Locks under the Control of the St. Lawrence Seaway Authority or the Department of Transport

Name	Location	Length of Channel	Locks			
			No.	Minimum Dimensions		
				Length	Width	Depth
		miles		ft.	ft.	ft.
Seaway Canals¹						
Main Route—						
South Shore.....	Montreal to Caughnawaga.....	20	2	766	80	30
Beauharnois.....	Melocheville to Lake St. Francis.....	15	2	766	80	30
Iroquois.....	Iroquois Point.....	1	1	766	80	30
Welland.....	Port Weller, Lake Ontario, to Port Colborne, Lake Erie.....	27.60	8	859	80	30
Non-toll—						
Lachine.....	Montreal to Lachine.....	8.74	5	270	45	14
Cornwall (not through canal).....	Cornwall to Closure dyke.....	3.50	4	270	43.67	14
Sault Ste. Marie.....	St. Mary's Rapids, Sault Ste. Marie.....	1.38	1	900	60	18.25
Department of Transport Canals						
Atlantic Area—						
Canso Canal.....	Canso Causeway, N.S.....	0.70	1	820	80	28
St. Peter's.....	St. Peter's Bay to Bras d'Or Lakes, Cape Breton, N.S.....	0.50	1	300	47.4	17
Richelieu River—						
St. Ours.....	St. Ours, Que.....	0.12	1	339	45	12
Chambly.....	Chambly to St. Johns, Que.....	11.78	9	120.5	23.25	6.5
Ottawa and Rideau Rivers—						
Ste. Anne.....	Junction of St. Lawrence and Ottawa Rivers.....	0.12	1	200	45	9
Carillon.....	Carillon Rapids, Ottawa River.....	0.94	2	200	45	9
Grenville.....	Long Sault Rapids, Ottawa River.....	5.94	5	200	45	9
Rideau.....	Ottawa to Kingston.....	123.53	47	134	33	5.5
	Rideau Lake to Perth (Tay Branch).....	6.82	2	134	33	5.5
Lake Ontario to Georgian Bay—						
Trent.....	Trenton to Peterborough lock, Peterborough.....	88.74	18	175	33	8 ²
	Peterborough lock to Swift Rapids.....	135.71	24	134	33	6
	Swift Rapids to Big Chute.....	8.00	—	—	—	4
	Big Chute to Port Severn.....	8.11	1	100	25	6
	Sturgeon Lake to Lindsay (Seugog Branch).....	10.00	1	142	33	6
	Lindsay to Port Perry (Seugog Branch).....	25.00	—	—	—	4.5
Murray.....	Isthmus of Murray, Bay of Quinte.....	7.53	—	—	—	8.5 ²

¹ Minimum depth of Seaway canals is 27 feet and minimum width 200 feet. Wiley-Dondero canal and two locks near Massena, N.Y., are in United States territory; dimensions are approximately the same as those of Canadian facilities.

² Notice must be given by vessels of more than six-foot draught.

³ With Lake Ontario at elevation of 243 feet.

8.—Traffic through Canadian Canals, by Nationality of Vessel, Navigation Seasons 1951-60

NOTE.—Figures include duplications where vessels use two or more canals. Figures from 1886 are available in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canadian		United States		United Kingdom		Other	
	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage
	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	22,141	22,951,468	2,993	3,987,700	1	1	414	309,972
1952.....	22,565	25,608,373	3,081	3,686,781	1	1	676	514,224
1953.....	23,378	27,845,139	2,984	3,777,571	1	1	1,201	919,875
1954.....	21,066	25,303,262	3,145	3,245,555	1	1	1,081	893,778
1955.....	22,758	27,709,232	3,950	3,798,290	200	132,853	1,264	1,044,774
1956.....	27,473	31,019,188	3,776	3,675,511	267	186,978	1,349	1,141,259
1957.....	24,191	27,726,358	3,324	3,802,909	332	221,254	1,689	1,364,205
1958.....	21,763	26,635,559	3,216	3,029,624	302	198,926	2,170	1,793,309
1959.....	21,363	28,706,462	4,819	4,233,936	1,125	3,130,140	3,252	7,321,449
1960.....	19,816	28,963,294	5,046	3,660,931	1,303	3,971,587	3,464	9,455,739

1 Included with Canadian vessels.

9.—Freight Traffic through Canadian Canals by Origin of Cargo, Navigation Seasons 1951-60

NOTE.—Figures include duplications where cargoes pass through two or more canals. Figures from 1886 are available in the corresponding table of previous Year Books beginning with the 1902 edition.

Navigation Season	Canada		United States		Britain		Other		Total
	Tons	P. C. of Total	Tons	P. C. of Total	Tons	P. C. of Total	Tons	P. C. of Total	Tons
1951.....	16,004,284	54.6	13,320,750	45.4	1	1	1	1	29,325,034
1952.....	17,245,051	55.0	14,109,088	45.0	1	1	1	1	31,354,139
1953.....	18,464,479	55.3	14,908,585	44.7	1	1	1	1	33,373,064
1954.....	17,237,542	57.3	12,833,159	42.7	1	1	1	1	30,070,701
1955.....	20,002,540	57.4	14,177,878	40.7	120,827	0.3	572,953	1.6	34,874,198
1956.....	24,698,001	61.7	14,457,217	36.1	106,448	0.3	754,899	1.9	40,016,565
1957.....	21,459,552	57.6	15,021,920	40.3	151,550	0.4	597,317	1.6	37,230,349
1958.....	21,832,526	62.2	12,177,376	34.7	223,059	0.6	863,626	2.5	35,096,587
1959.....	30,829,746	60.4	17,134,694	33.5	326,992	0.6	2,784,700	5.5	51,076,132
1960.....	28,886,228	54.6	20,993,117	39.6	332,794	0.6	2,734,744	5.2	52,946,883

1 Included with United States.

10.—Tonnage of Products Carried by Canal, classified by Commodity Group, Navigation Season 1960

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Canal	Agricultural Products	Animal Products	Manufactures and Miscellaneous	Forest Products	Mineral Products	Total
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie.....	483,772	27	1,077,081	5,197	154,545	1,720,622
Welland Ship	3,540,523	234,064	5,214,353	314,950	13,976,837	29,280,737
St. Lawrence River.....	8,044,555	256,631	5,494,202	326,816	6,629,957	20,752,161
Richelieu River.....	—	—	91,456	—	15,243	106,699
St. Peter's.....	—	509	182	—	—	723
Murray.....	—	—	130	—	—	130
Ottawa River.....	—	—	100	—	278,100	278,200
Rideau.....	—	—	23	49	—	72
Trent.....	—	—	64	—	—	64
St. Andrew's.....	216	1,253	2,539	91	—	4,099
Canso.....	17,022	13,303	689,285	15,106	68,660	803,376
Totals.....	18,086,130	505,787	12,569,415	662,209	21,123,342	52,946,883

11.—Freight Traffic through Canadian Canals, by Direction and Origin, Navigation Season 1960

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Canal	From Canadian to Canadian Ports		From Canadian to United States Ports		From United States to United States Ports	
	Up	Down	Up	Down	Up	Down
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie.....	548,412	615,653	5,883	347,346	100,889	3,263
Welland Ship.....	1,231,605	5,474,312	5,798,709	20,408	349,870	733,102
St. Lawrence River.....	2,129,699	4,762,830	4,588,481	5,705	37,371	48,660
Richelieu River.....	53,550	7,245	27,814	—	—	—
St. Peter's.....	142	581	—	—	—	—
Murray.....	130	—	—	—	—	—
Ottawa River.....	100	278,100	—	—	—	—
Rideau.....	72	—	—	—	—	—
Trent.....	17	47	—	—	—	—
St. Andrew's.....	1,449	2,650	—	—	—	—
Canso.....	554,155	154,066	88	20,628	—	—
Totals.....	4,519,331	11,295,484	10,420,975	394,087	488,130	785,025
	From United States to Canadian Ports		Between other Foreign Ports and United States Ports		Between other Foreign Ports and Canadian Ports	
	Up	Down	Up	Down	Up	Down
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie.....	67,104	12,406	4,392	2,886	976	11,412
Welland Ship.....	35,019	9,903,489	851,494	3,902,062	133,026	847,641
St. Lawrence River.....	53,468	1,772,170	869,653	3,923,636	1,186,653	1,374,835
Richelieu River.....	—	17,970	—	—	—	120
St. Peter's.....	—	—	—	—	—	—
Murray.....	—	—	—	—	—	—
Ottawa River.....	—	—	—	—	—	—
Rideau.....	—	—	—	—	—	—
Trent.....	—	—	—	—	—	—
St. Andrew's.....	—	—	—	—	—	—
Canso.....	29,752	—	—	—	22,344	22,343
Totals.....	185,343	11,706,035	1,724,539	7,828,584	1,342,999	2,256,351
	Traffic by Direction		Origins of Cargo			Total Cargo
	Up	Down	Canada	United States	Other Countries	
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie.....	727,656	992,966	1,528,706	186,548	5,368	1,720,622
Welland Ship.....	8,399,723	20,881,014	13,372,675	14,923,542	984,520	29,280,737
St. Lawrence River.....	8,864,325	11,887,836	12,861,550	5,835,205	2,055,206	20,752,161
Richelieu River.....	81,364	25,235	88,729	17,970	—	106,699
St. Peter's.....	142	581	723	—	—	723
Murray.....	130	—	130	—	—	130
Ottawa River.....	100	278,100	278,200	—	—	278,200
Rideau.....	72	—	72	—	—	72
Trent.....	17	47	64	—	—	64
St. Andrew's.....	1,449	2,650	4,099	—	—	4,099
Canso.....	606,339	197,037	751,280	29,752	22,344	803,376
Totals.....	18,681,317	34,265,566	28,886,228	20,993,117	3,067,538	52,946,883

The figures in Tables 10 and 11 include duplications where the same freight passes through two or more canals, but in Table 12 duplications in the traffic passing through the St. Lawrence and Welland Ship canals and the Canadian lock at Sault Ste. Marie have been eliminated wherever possible.

Grain trans-shipped at Georgian Bay, Lake Erie, or other ports above Montreal is treated as new cargo and as most of this grain has passed through either the Canadian or United States locks at Sault Ste. Marie there are still duplications in the data because of this treatment. These duplications cannot be avoided when net totals for the Canadian canals are computed because it is impossible to ascertain which lock at Sault Ste. Marie was used by the grain reloaded at Port Colborne, Ont., or other trans-shipping port.

12.—St. Lawrence—Great Lakes Traffic using St. Lawrence, Welland Ship and Sault Ste. Marie Canals, 1960

Canals Used	Up-bound Freight	Down-bound Freight	Total
	tons	tons	tons
Traffic using Canadian St. Lawrence - Great Lakes System.....	11,690,411	23,840,810	35,531,221
St. Lawrence and Ottawa.....	80	279,620	279,700
St. Lawrence and Richelieu.....	4,267	—	4,267
St. Lawrence only.....	2,790,127	1,966,005	4,756,132
St. Lawrence and Welland Ship.....	6,011,503	9,437,045	15,448,548
St. Lawrence, Welland Ship and Sault Ste. Marie.....	57,920	207,663	265,583
Welland Ship only.....	2,156,778	11,165,174	13,321,952
Welland Ship and Sault Ste. Marie.....	171,124	79,923	251,047
Sault Ste. Marie only.....	498,612	705,380	1,203,992
Traffic using United States Locks at Sault Ste. Marie only.....	9,421,712	80,632,290	90,054,002
Totals.....	21,112,123	104,473,100	125,585,223

Traffic through the Sault Ste. Marie canals, Canadian and United States, has fluctuated between a high of 128,489,000 tons reached in 1953 and a low of 70,906,000 tons in 1959. The dominant traffic from a tonnage aspect is iron ore which also reached its highest point in 1953 at 98,658,000 tons, decreasing to 47,214,000 tons in 1959 and rising to 67,938,901 tons in 1960. Soft coal has usually been second in volume to iron ore with a volume ranging from 13,301,000 tons in 1950 to a low of 6,389,000 in 1958, rising to 7,361,000 tons in 1959 and declining again to 6,964,000 in 1960. Although wheat has generally been third in tonnage, during the three years 1958-60 it has remained in second place, totalling 7,478,000, 7,496,000 and 7,611,000 tons, respectively. Other grains range between 40 p.c. and 60 p.c. of the wheat tonnage.

Canadian use of the Panama Canal.—The use of the Panama Canal as a transport facility for the movement of goods from one Canadian port to another is of relatively minor importance. Of the total of 4,135,000 long tons of cargo leaving the West Coast of Canada in the year ended June 30, 1961 and passing through the Panama Canal, only 19,000 long tons were destined for Eastern Canadian ports. Similarly, of the 771,000 long tons of cargo leaving Eastern Canadian ports and passing through the Panama Canal, 28,000 long tons were destined for Western Canadian ports. The total tonnage passing through the Panama Canal and arriving in Canadian West Coast ports from any origin, Canada or elsewhere, amounted to 679,000 long tons in the year ended June 30, 1961; the total from any origin arriving at Eastern Canadian ports after having passed through the Panama Canal was 801,000 long tons.

Subsection 4.—The St. Lawrence Seaway

Events leading up to the beginning of the St. Lawrence Seaway project and the progress made during the years of its construction are covered in the 1954 to 1959 Year Books. A special article carried in the 1956 edition (pp. 821-829) gives detailed information on Great Lakes-St. Lawrence waterway traffic immediately prior to the beginning of con-

struction on the project and another special article carried in the 1960 Year Book (pp. 851-860) covers the story of the Seaway, its new facilities and services and the movement of freight during the second year of its operation.

The St. Lawrence Seaway Authority, constituted as a Corporation by Act of Parliament in 1951 (RSC 1952, c. 242), undertook the construction (and subsequent maintenance and operation) of Canadian facilities between Montreal and Lake Erie to allow 27-foot navigation, concurrently with the construction of similar facilities in the International Rapids Section of the St. Lawrence River by the Saint Lawrence Seaway Development Corporation of the United States. The Seaway was opened to commercial traffic on Apr. 1, 1959 and officially opened on June 26, 1959. With the opening of the Seaway, certain ancillary canals were transferred to the jurisdiction of the St. Lawrence Seaway Authority for operation and maintenance purposes. These include the Lachine, a section of the Cornwall Canal, a portion of the third Welland Canal and the Canadian locks at Sault Ste. Marie. Tolls are not assessed against vessel movements on these waterways and traffic data for them are not included in this Subsection.

Tables 13 and 14 give combined traffic statistics of the St. Lawrence and Welland Canals for the year 1961. Duplicate transits are eliminated so that the figures show the actual total movement of goods through the St. Lawrence Seaway. On this basis, 5,141 ships carrying more than 10,196,000 tons of cargo moved upbound through the Seaway in 1961 and 5,082 vessels carrying 26,011,000 tons moved downbound. Ocean-going ships carried 21.3 p.c. of the total cargoes, lakers 78.4 p.c. and other craft 0.3 p.c. There is still evident an imbalance of loading, 56.8 p.c. of the gross registered tonnage of all vessels upbound being in ballast compared with 43.2 p.c. loaded. Downbound, however, only 12.5 p.c. of the tonnage was in ballast.

Of the total tonnage carried upbound in 1961, 8,481,000 tons were domestic cargo and 1,716,000 foreign traffic; downbound, 20,328,000 tons were domestic freight and 5,683,000 tons were carried to and from foreign ports.

On the Montreal-Lake Ontario Section, upbound freight decreased 6.3 p.c. in 1961 compared with 1960 but downbound traffic increased by 31.7 p.c. This decrease in upbound traffic was accounted for almost entirely by a reduction in the volume of iron ore shipped from St. Lawrence ports to Hamilton and Lake Erie. The number of transits both upbound and downbound were 23 more in 1961 than in 1960, indicating a slight increase in the size of vessel using this portion of the Seaway and in the volume of cargo carried. Bulk cargo comprised 91.1 p.c. of the total traffic through the Montreal-Lake Ontario Section for 1961, amounting to 21,344,000 tons compared with 18,056,000 tons in 1960. General cargo totalled nearly 2,074,000 tons, a decrease of 7.9 p.c. from the 1960 season. The principal commodities through the St. Lawrence canals were wheat, iron ore, corn, scrap iron and steel, bituminous coal and fuel oil. Traffic patterns according to country of origin or destination show that 38.6 p.c. of the total movement was between two Canadian ports, 29.2 p.c. moved between Canadian and United States ports and 31.7 p.c. consisted of foreign trade to and from Canada and the United States.

In the Welland Canal there were 7,747 transits in 1961 and the registered gross tonnage of all transiting vessels was 40,724,000. Cargo volume amounted to 7,668,000 tons upbound and 23,787,000 tons downbound and bulk cargo accounted for 94.0 p.c. of the traffic. Although many vessels pass through both the St. Lawrence and the Welland Canals on "through" trips, there is a substantial amount of local traffic between Great Lakes ports which involves only the Welland Canal. These movements are largely iron ore, grain and coal. The Welland Canal traffic was nearly 8,000,000 cargo tons greater than that reported for the Montreal-Lake Ontario Section.

13.—Summary Statistics of Total St. Lawrence Seaway Traffic, 1961

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Item	Upbound			Downbound		
	No. of Transits	Gross Tons	Cargo Tons	No. of Transits	Gross Tons	Cargo Tons
Type of Vessel						
Ocean—						
Cargo	1,013	5,089,249	1,496,431	1,000	5,002,151	4,918,056
Tanker	84	783,397	336,419	84	785,080	633,286
Laker—						
Cargo	2,883	15,901,788	6,521,581	2,777	15,467,348	19,402,103
Tug and barge	264	249,756	184,258	291	285,064	382,343
Tanker	564	1,467,727	1,657,131	565	1,464,826	616,279
Other craft	333	83,984	617	365	154,344	58,944
Totals	5,141	23,575,901	10,196,437	5,082	23,158,813	26,011,011
Type of Cargo						
Bulk	1,508	6,489,821	8,463,668	3,204	17,600,673	23,817,118
General	507	1,911,537	885,490	81	360,988	182,109
Mixed	451	1,683,289	847,279	594	2,290,479	2,011,784
Passengers	180	98,554	—	174	23,113	—
In Ballast—						
Ocean	326	2,389,727	—	31	283,182	—
Laker	2,009	10,924,615	—	816	2,520,927	—
Other	160	78,358	—	182	79,451	—
Type of Traffic						
Domestic—						
Canada to Canada	2,095	7,774,612	2,970,664	2,221	8,813,337	9,171,792
Canada to United States	1,604	9,978,593	5,190,984	12	59,268	18,172
United States to Canada	18	48,783	23,136	1,312	7,990,714	10,428,455
United States to United States	424	592,007	296,020	440	482,566	709,301
Foreign—						
Canada						
Import	162	984,650	315,835	—	—	—
Export	—	—	—	181	1,121,511	936,143
United States—						
Import	838	4,197,256	1,399,798	—	—	—
Export	—	—	—	916	4,691,417	4,747,148

¹ Includes naval vessels.
4,694.

² Upbound passengers in all types of vessel numbered 4,394 and downbound

14.—St. Lawrence Seaway Traffic classified by Type of Cargo, 1961

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Commodity	Cargo Tons	P.C. of Total	Commodity	Cargo Tons	P.C. of Total
Agricultural Products	13,532,938	37.4	Mineral Products	13,909,462	38.4
Wheat	8,367,608	23.1	Iron ore	6,995,474	19.4
Corn	1,851,869	5.1	Bituminous coal	4,974,449	13.7
Barley	929,182	2.6	Stone, ground or crushed	676,753	1.9
Soybeans	861,087	2.4	Salt	210,652	0.6
Oats	354,517	1.0	Coke	171,326	0.5
Flaxseed	319,109	0.9	Sulphur	120,907	0.3
Flour, edible, other	242,703	0.7	Petroleum, crude	113,301	0.3
Rye	162,088	0.4	Clay and bentonite	83,784	0.2
Soybean oil cake and meal	123,570	0.3	Gravel and sand	83,447	0.2
Beans and peas	73,941	0.2	Phosphate rock	59,410	0.2
Malt	54,313	0.2	Aluminum ore and concentrates	48,071	0.1
Flour, wheat	14,956	—	Stone, rough	6,316	—
Other agricultural products	177,994	0.5	Other mineral products	365,572	1.0
Animal Products	280,704	0.8	Forest Products	312,535	0.8
Packing house products, edible	109,605	0.3	Pulpwood	282,757	0.7
Hides, skins and pelts	49,256	0.1	Other forest products	29,778	0.1
Other animal products	121,842	0.4			

14.—St. Lawrence Seaway Traffic classified by Type of Cargo, 1961—concluded

Commodity	Cargo Tons	P.C. of Total	Commodity	Cargo Tons	P.C. of Total
Manufactures and Miscellaneous	7,317,411	20.2			
Fuel oil.....	1,695,613	4.7	Machinery and machines.....	71,608	0.2
Scrap iron and steel.....	1,428,281	3.9	Rubber, crude, natural, synthetic.....	67,548	0.2
Iron and steel, manufactured.....	516,432	1.4	Iron and steel, nails, wire.....	59,681	0.2
Newsprint.....	492,169	1.3	Wood pulp.....	46,528	0.1
Gasoline.....	400,411	1.1	Iron and steel, bars, rods, slabs.....	22,149	0.1
Pig iron.....	245,597	0.7	Other manufactures and miscellaneous.....	905,732	2.5
Lubricating oils and greases.....	243,313	0.7	Package Freight.....	854,398	2.4
Food products.....	198,798	0.5	Package freight—domestic.....	833,005	2.3
Petroleum products, other.....	179,829	0.5	Package freight—foreign.....	21,393	0.1
Sugar.....	172,372	0.5			
Chemicals.....	136,569	0.4			
Tar, pitch and creosote.....	128,739	0.3			
Sodium products.....	108,391	0.3			
Cement.....	101,611	0.3			
Syrup and molasses.....	96,040	0.3	Totals.....	36,207,448	100.0

Income of the St. Lawrence Seaway Authority for 1961 amounted to \$10,447,256, comprising toll revenue of \$8,078,448 assessed for transits through the Seaway locks between Montreal and Lake Ontario, \$1,460,450 on transits through the Welland Canal, plus sundry revenues (rentals, wharfage, bridge revenue, etc.) amounting to \$908,358. Operating and maintenance expenses amounted to \$5,401,395 and administrative expenses were \$1,616,737, making a total of \$7,018,132, excluding an amount of \$272,957 for non-toll canals. Table 15 gives toll revenue separately for the Montreal-Lake Ontario Section and the Welland Canal, variously classified for the years 1960 and 1961. Other financial statistics are given in Section 2, pp. 817-818.

Pleasure craft locked through the Montreal-Lake Ontario Section canals numbered 306 upbound and 346 downbound in 1961, and those locked through the Welland Canal numbered 69 upbound and 96 downbound.

15.—Toll Revenue from St. Lawrence Seaway Traffic, classified by Type of Vessel and Type of Cargo, 1960 and 1961

NOTE.—Figures are for gross tolls collected only and include United States toll funds.

Item	1960		1961	
	Upbound	Downbound	Upbound	Downbound
	\$	\$	\$	\$
Montreal-Lake Ontario Section				
Type of Vessel—				
Cargo.....	3,704,466	5,152,483	3,790,973	6,554,199
Tug and barge.....	3,738	19,493	2,905	22,852
Tanker.....	816,821	401,274	649,210	380,954
Other craft.....	4,479	6,305	2,495	3,472
Totals, Montreal-Lake Ontario Section.....	4,529,504	5,579,555	4,445,583	6,961,477
Type of Cargo—				
Bulk.....	3,157,045	3,938,470	2,837,711	5,471,303
General.....	715,433	391,132	687,071	171,711
Mixed.....	493,239	1,126,581	672,640	1,235,715
Passengers.....	7,054	7,568	8,002	5,256
In Ballast—				
Ocean.....	77,971	29,900	89,907	10,183
Laker.....	75,872	82,520	147,812	64,703
Other.....	2,890	3,384	2,440	2,606

15.—Toll Revenue from St. Lawrence Seaway Traffic, classified by Type of Vessel and Type of Cargo, 1960 and 1961—concluded

Item	1960		1961	
	Upbound	Downbound	Upbound	Downbound
	\$	\$	\$	\$
Welland Canal Section				
Type of Vessel—				
Cargo.....	469,924	720,376	515,139	822,053
Tug and barge.....	14,257	16,759	10,269	15,115
Tanker.....	44,224	49,486	44,760	50,918
Other craft.....	1,599	1,732	940	1,257
Totals, Welland Canal Section.....	530,004	788,353	571,108	889,343
Type of Cargo—				
Bulk.....	235,472	654,459	208,544	747,238
General.....	70,350	27,514	74,543	14,043
Mixed.....	29,921	74,572	40,393	96,920
Passengers.....	2,455	3,365	5,045	3,067
In Ballast—				
Ocean.....	40,239	1,171	49,320	1,535
Laker.....	148,478	24,334	191,160	24,303
Other.....	3,089	2,938	2,103	2,237
Grand Totals.....	5,059,508	6,367,908	5,016,691	7,850,820

Subsection 5.—Marine Services of the Federal Government

The services covered in this Subsection deal with aids to navigation, including the maintenance of the St. Lawrence River Ship Channel, steamship inspection and pilotage service.

Aids to Navigation.—Included under aids to navigation are the lighthouses and the whole system of marine danger signals on the East and West Coasts of Canada, on Hudson Bay and Strait, the St. Lawrence River and Gulf, the Mackenzie River and Arctic passages, and the inland rivers and lakes—a very extensive system designed to provide safe navigation in all Canadian waters. In addition, a pilotage service is maintained in waters where navigation is difficult; this service is described at p. 814. A further aid to safe navigation is found in the chains of radio signal and direction-finding stations described under Marine Navigation at pp. 848-849. Lists of aids to navigation, with the exception of very minor ones, are published by the Department of Transport.

16.—Marine Danger Signals Maintained in Canada, Years Ended Mar. 31, 1960 and 1961

NOTE.—In addition to the aids to navigation listed, approximately 10,400 unlighted buoys, balises, dolphins and beacons are maintained. Lists of marine danger signals maintained from 1929 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Type of Signal	1960	1961	Type of Signal	1960	1961
	No.	No.		No.	No.
Lights.....	3,074	3,054	Hand fog horns and bells.....	98	85
Lightships.....	4	3	Lighted and combination lighted whistling and bell buoys.....	1,214	1,324
Light-keepers.....	930	903	Unlighted bell and whistling buoys.....	138	136
Fog whistles and sirens.....	39	45	Explosive signals.....	3	3
Diaphones and tyfons.....	268	270			
Mechanical bells and gongs.....	18	18			

Navigable waters have been improved greatly by dredging in channels and harbours, by the removal of obstructions, and by the building of remedial works to maintain or control water levels. Incidental to these developments of navigable waters are works to guard shorelines and prevent erosion, and for the control of roads and bridges that cross navigable channels. Icebreaking operations are continuous throughout the winter. The objective is to reduce the danger of flash floods in the Montreal area during the winter caused by deep accumulations of drift ice, and to prevent flood conditions during the spring ice break-up.

St. Lawrence Ship Channel.—This channel extends from about 40 miles below Quebec City to the foot of Lachine Canal at Montreal, a distance of 200 miles. About 130 miles of this distance is dredged channel.

Above Quebec the channel has a limiting depth of 35 feet at extreme low water and a minimum width of 550 feet, with additional width up to 1,500 feet at all curves and difficult points, and additional anchorage and turning areas. Widening of the channel to a minimum width of 800 feet, commenced in 1952, is now 40 p.c. completed. This section comprises about 115 miles of dredged channel. Below Quebec the limiting depth of dredged channel, about 15 miles in length, is 30 feet at low tide, with a width of 1,000 feet. An average tidal range of 15 feet in this area provides ample depth for any vessel using the St. Lawrence route. Above Quebec, maintenance requirements as a result of silting in this dredged channel are relatively minor but below the city silting is more pronounced because of tidal action.

The ship channel is well defined by buoys and the centre marked by range lights, permitting uninterrupted day and night navigation throughout the open season from about mid-April to early December. The movements of all shipping, weather and ice conditions and obstructions to traffic throughout the St. Lawrence waterway from Fame Point, Que., to Kingston, Ont., are recorded and made available to all concerned through a series of reporting stations known as the Marine Reporting Service.

17.—Seasons of Open Navigation on the St. Lawrence Ship Channel, 1942-61

NOTE.—Figures from 1882 are given in the corresponding table of previous Year Books beginning with the 1934-35 edition.

Year	Channel Open, Quebec to Montreal ¹	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour	Year	Channel Open, Quebec to Montreal ¹	First Arrival from Sea, Montreal Harbour	Last Departure for Sea, Montreal Harbour
1942.....	Apr. 17	May 2	Dec. 16	1952.....	Apr. 12	Apr. 13	Dec. 10
1943.....	" 29	" 24	" 13	1953.....	Mar. 30	" 2	" 21
1944.....	" 20	Apr. 21	" 9	1954.....	Apr. 15	Mar. 30	" 15
1945.....	" 1	" 9	" 3	1955.....	" 17	Apr. 5	" 16
1946.....	" 1	" 12	" 18	1956.....	" 13	" 2	" 17
1947.....	" 16	" 19	" 5	1957.....	" 8	" 4	" 18
1948.....	" 10	" 19	" 10	1958.....	" 6	Mar. 30	" 23
1949.....	" 7	" 7	" 15	1959.....	" 13	Apr. 1	" 20
1950.....	" 18	" 18	" 7	1960.....	" 14	Mar. 21	" 16
1951.....	" 11	" 13	" 13	1961.....	" 11	" 27	" 22

¹ "Channel Open" means the route can be navigated although there may be floating ice in the river.

Steamship Inspection.—The Steamship Inspection Service was established by authority of the Canada Shipping Act. Its functions include the approval of design of the hulls, machinery and equipment of ships; inspection during construction; periodic inspection and the issue of inspection certificates; the assignment of load lines; the conditions under which dangerous goods may be carried in ships; the protection against accident of workers employed in loading and unloading ships; the prevention from pollution of Canadian territorial waters by oil from ships; and the certification of marine engineers. The Board also looks after the interests of the Federal Government in schools for marine engineers.

The Chairman and the Board of Steamship Inspection are located at Ottawa and field offices are maintained in the principal ocean and inland ports.

18.—Statistics of Steamship Inspection, by Inspection Division, Years Ended Mar. 31, 1960 and 1961

Division	Vessels Registered or Owned in Canada				Vessels Registered or Owned Elsewhere			
	1960		1961		1960		1961	
	No.	gross tonnage	No.	gross tonnage	No.	gross tonnage	No.	gross tonnage
St. John's, Nfld.....	171	50,898	145	36,262	—	—	—	—
North Sydney, N.S.....	70	19,047	59	19,025	4	10,784	6	5,811
Halifax, N.S.....	179	139,701	216	129,399	—	—	—	—
Saint John, N.B.....	89	20,108	30	16,884	4	2,703	5	1,492
Quebec, Que.....	90	93,211	153	150,007	7	36,905	6	3,188
Sorel, Que.....	73	60,643	64	66,401	—	—	1	12,714
Montreal, Que.....	133	225,109	106	173,433	—	—	3	14,957
Ottawa, Ont.....	5	149	5	149	—	—	—	—
Kingston, Ont.....	100	137,390	96	85,103	—	—	—	—
Toronto, Ont.....	141	328,524	105	286,029	1	832	4	10,427
St. Catharines, Ont.....	50	196,724	47	137,415	—	—	1	5,141
Collingwood, Ont.....	30	83,057	40	77,329	—	—	—	—
Midland, Ont.....	63	130,314	74	166,226	—	—	—	—
Port Arthur, Ont.....	49	35,014	54	35,981	1	29	—	—
Vancouver, B.C.....	416	102,760	421	109,342	3	23,457	1	6,133
Victoria, B.C.....	62	48,046	53	40,125	1	1,427	1	1,427
Totals.....	1,721	1,670,695	1,668	1,529,110	21	76,137	28	61,290

Pilotage.—Pilotage service functions under the provisions of Part VI and Part VIA of the Canada Shipping Act. Wherever a pilotage district has been created by the Governor in Council, qualified pilots are licensed by the pilotage authority of the district. There are in Canada 23 pilotage districts, in 11 of which the Minister of Transport is the pilotage authority (see Table 19); in each of the other districts the authority is a local body appointed by the Governor in Council. There are also three districts that are administered jointly by Canada and the United States.

19.—Pilotage Service, by Pilotage District, Years Ended Mar. 31, 1960 and 1961

District	1960		1961	
	Ships	Net Registered Tonnage	Ships	Net Registered Tonnage
	No.		No.	
Bras d'Or Lakes, N.S.....	224	479,700	224	595,240
Sydney, N.S.....	2,401	6,711,492	2,108	6,213,612
Halifax, N.S.....	3,297	13,095,640	3,374	12,630,448
Saint John, N.B.....	1,562	5,701,155	1,576	6,134,417
Quebec, Que.....	6,603	29,751,584	7,404	31,834,229
Montreal, Que.....	10,413	34,677,084	10,535	38,944,901
Cornwall, Ont.....	—	—	2,606	8,202,378
Kingston, Ont.....	—	—	2,806	8,976,394
Cornwall-Kingston, Ont.....	5,365	15,546,625	—	—
Churchill, Man.....	135	272,121	139	260,996
British Columbia.....	6,468	29,971,088	6,370	30,952,650
Totals.....	36,468	136,206,489	37,142	144,745,265

In addition there are known to be five districts in Newfoundland under the local pilotage authority. These districts continued to be administered under Newfoundland statutes after union with Canada (Mar. 31, 1949). Part VI of the Canada Shipping Act with respect to pilotage has not been proclaimed in force in Newfoundland.

Section 2.—Financial Statistics of Waterways

The principal statistics available on the cost of facilities for water-borne traffic consist of the record of public expenditure on waterways. Such expenditure may be classified as capital expenditure, or investment and expenditure for maintenance and operation. Revenue from operation is also recorded. The major part of the capital expenditure for the permanent improvement of waterways is provided by the Federal Government. Capital expenditure by municipalities and private capital expenditure are confined almost entirely to terminal or dockage facilities. On the other hand, investment in shipping has come almost entirely from private sources. No figures are available regarding private investment in shipping except those appearing in the reports of the operating companies that cover only a portion of the field. There are no statistics showing the revenue of ship operators from passenger and freight traffic.

Capital Expenditure.—The only figures available of federal capital expenditure on Canadian waterways are those contained in the *Public Accounts* and the annual reports of the Departments of Transport, Public Works and Finance and in the annual report of the St. Lawrence Seaway Authority. It must be realized that such expenditure cannot be regarded as an accurate indication of the present worth of the undertakings represented. The cost of building canals and other waterways and permanent works to facilitate water transportation in Canada is represented in such reports at their original book values, no deductions having been made from the cumulative totals for depreciation from year to year or for abandonment of works that have been superseded, such as, for example, the first Welland canals and the now flooded St. Lawrence River canals. To this extent, such figures are an over-statement of the present value of the works in use. The figures are further limited by the fact that they do not include the cost of maintenance and improvements or the operation of these works, such charges having been made to the consolidated deficit account as annual expenditure and not to capital account. Thus, such capital expenditure on waterways is not included in this publication, with the exception of that made by the National Harbours Board on facilities under its jurisdiction. Capital values of the fixed assets administered by the Board are shown as at Dec. 31, 1959 and 1960 in Table 20. These figures include all buildings, machinery and durable plant improvements and have been subject to deductions for depreciation and the scrapping or abandonment of plant and therefore represent a fair approximation of the present value of the properties.

20.—Capital Values of Fixed Assets Administered by the National Harbours Board, as at Dec. 31, 1959 and 1960

NOTE.—Compiled from the annual reports of the National Harbours Board.

Item	1959	1960	Item	1959	1960
	\$	\$		\$	\$
Harbour dredging.....	19,985,142	20,742,381	Floating and shore equipment.....	3,427,302	3,850,105
Land and land improvements.....	16,089,319	16,453,676	Jacques Cartier Bridge.....	22,022,545	22,102,772
Wharves and piers.....	120,881,168	131,116,938	Works under construction.....	21,644,641	21,352,667
Permanent sheds.....	33,805,183	36,089,139			
Railway systems.....	6,705,386	6,654,491	Sundry expenditure—		
Grain elevator systems.....	68,018,847	70,614,451	undistributed.....	4,446,157	4,446,157
Cold storage systems.....	6,352,292	6,637,163			
Harbour buildings, service			Totals.....	331,668,298	348,743,681
plants and equipment.....	8,290,316	8,683,741			

21.—Amounts Advanced by the Federal Government to the National Harbours Board for Capital Expenditure, 1959 and 1960

NOTE.—Compiled from the annual reports of the National Harbours Board.

Harbours and Properties	1959	1960	Harbours and Properties	1959	1960
	\$	\$		\$	\$
Halifax.....	376,394	—	Montreal.....	14,651,792	11,007,649
Saint John.....	68,143	—	Churchill.....	—	249,372
Chicoutimi.....	72,176	—	Vancouver.....	1,085,532	193,621
Quebec.....	1,522,926	429,663			
Trois Rivières.....	41,985	—	Totals.....	17,818,948	11,890,305

Waterways Expenditure and Revenue on Consolidated Fund Account.—

Expenditure under this heading (Tables 22 to 24) is mainly for the operation and maintenance of various facilities for water transport but, unfortunately, the line between operation and maintenance expenditure is not as finely drawn as is desirable. Revenue in connection with waterways of the Department of Transport, the Department of Public Works and the St. Lawrence Seaway Authority is shown in Table 25.

To facilitate water transportation, the Federal Government expends annually, in addition to the recurrent expenditure shown here, a considerable amount to cover deficits of the Canadian National (West Indies) Steamships Limited and of the National Harbours Board, and for mail subsidies and steamship subventions as shown in Table 27. Operating revenue and expenditure of facilities administered by the National Harbours Board are shown separately in Table 26.

22.—Department of Transport Expenditures on Marine Service, charged to Consolidated Deficit Account, Years Ended Mar. 31, 1960 and 1961

Service	1960	1961	Service	1960	1961
	\$	\$		\$	\$
Administration, including agencies.....	837,861	998,400	Marine Regulations Branch—Steamship Inspection Division.....	989,176	1,084,067
Marine Works Branch—Aids to Navigation Division—			Nautical and Pilotage Division—		
Administration, operation and maintenance.....	5,911,916	7,497,814	Nautical Services.....	522,914	553,754
Construction.....	3,965,422	2,630,403	Pilotage Services—		
River St. Lawrence Ship Channel Division—			Administration, operation and maintenance.....	1,206,838	1,563,174
Administration, operation and maintenance.....	1,393,302	1,404,605	Construction.....	106,334	134,676
Canals Division—			Pensions to former pilots.....	1,800	1,346
Administration, operation and maintenance.....	2,238,684	2,259,712	Marine reporting service.....	135,056	156,537
Construction.....	1,390,924	925,585	Marine Operations Branch—		
Operating deficit and capital requirements of canals and works entrusted to the St. Lawrence Seaway Authority.....	2,154,639	2,315,389	Administration, operation and maintenance.....	17,133,990	18,284,939
			Totals.....	37,988,856	39,810,401

23.—Department of Public Works Expenditure on Waterways (Harbours, Rivers, Roads and Bridges) charged to Consolidated Fund Account, Years Ended Mar. 31, 1960 and 1961

NOTE.—Compiled from the annual reports of the Department concerned by the Comptroller of the Treasury, Department of Finance. Excludes expenditures on harbours administered by the National Harbours Board as shown in Table 26.

Year and Province or Territory	Dredging ¹	Con- struction	Improve- ments and Repairs	Staff and Sundries	Total
	\$	\$	\$	\$	\$
1960					
Newfoundland.....	324,763	4,677,999	290,786	156,776	5,450,324
Prince Edward Island.....	293,540	905,500	111,640	436,655	1,747,335
Nova Scotia.....	597,842	3,956,371	604,732	126,951	5,285,896
New Brunswick.....	2,266,474	3,169,327	227,771	11,052	5,674,624
Quebec.....	1,053,356	6,574,116	989,413	330,923	8,947,808
Ontario.....	1,044,818	6,646,201	370,783	191,621	8,253,423
Manitoba.....	211,280	256,057	50,689	183,200	701,206
Saskatchewan.....	—	—	1,004	—	1,004
Alberta.....	254,615	97,161	10,424	22,444	384,644
British Columbia.....	1,362,853	3,225,883	474,860	852,341	5,915,937
Yukon and Northwest Territories.....	86,070	52,110	17,136	26,091	181,407
Canada, 1960.....	7,495,611	29,560,725	3,149,218	2,338,054	42,543,608
1961					
Newfoundland.....	556,715	6,313,869	377,690	98,593	7,346,867
Prince Edward Island.....	321,991	656,797	142,808	376,940	1,498,535
Nova Scotia.....	445,253	3,569,509	516,905	90,506	4,622,173
New Brunswick.....	842,462	2,644,040	225,101	23,932	3,735,535
Quebec.....	726,432	5,867,025	1,151,160	293,834	8,043,451
Ontario.....	757,919	8,122,588	445,774	63,372	9,389,653
Manitoba.....	212,925	198,373	74,653	87,240	573,191
Saskatchewan.....	—	—	3,557	—	3,557
Alberta.....	193,681	28,983	3,465	5,774	231,903
British Columbia.....	1,307,343	2,224,530	462,218	2,220,091	6,214,182
Yukon and Northwest Territories.....	86,253	82,607	10,703	83,564	263,127
Canada, 1961.....	5,450,974	29,708,321	3,414,034	3,348,846	41,922,175

¹ Includes expenditures for dredging plants.

24.—St. Lawrence Seaway Authority Expenditures charged to Consolidated Deficit Account, 1960 and 1961

Item	1960	1961 ^p	Item	1960	1961 ^p
	\$	\$		\$	\$
Administration.....	1,323,950	1,616,737	Maintenance Expenses—concluded		
Operating Expenses—			Canal lands and roads.....	114,860	152,253
Channels, canals and locks.....	1,350,208	1,684,172	Power transmission lines and		
Bridges.....	517,430	511,041	canal lighting.....	50,495	85,669
Grants in lieu of municipal taxes.....	410,897	353,142	Other.....	68,547	94,757
Miscellaneous.....	42,832	54,243	Operating and maintenance super- vision.....	863,848	1,071,181
Maintenance Expenses—					
Channels, canals and locks.....	831,408	768,373			
Bridges and tunnel.....	472,990	527,088			
Dredging and aids to naviga- tion.....	149,517	99,477	Totals.....	6,197,032	7,018,133

25.—Federal Government Revenue in connection with Waterways, Years Ended Mar. 31, 1960 and 1961

NOTE.—Compiled from annual reports of the Department of Transport, the *Public Accounts* and the annual report of the St. Lawrence Seaway Authority.

Department and Item	1960	1961	Department and Item	1960	1961
	\$	\$		\$	\$
Department of Transport			Department of Public Works		
Marine Services	4,818,102	8,188,380	Earnings of Dry Docks	356,044	351,094
Canals.....	398,838	312,010	Champlain Dock, Lauzon.....	148,153	139,223
Fines and forfeitures.....	12,336	11,053	Lorne Dock, Lauzon.....	44,675	36,638
Steamship inspection.....	165,403	161,549	Esquimalt new dock.....	160,473	172,912
Wharf revenue.....	679,656	715,150	Selkirk repair slip.....	2,743	2,321
Harbour dues.....	165,787	173,892			
Measuring surveyor's fees.....	464	1,210			
Examinations—masters' and mates' fees.....	8,832	8,935	Works and Plants Leased	41,749	91,540
Pilots' licence fees (pilotage)....	81	386	Kingston dry dock.....	12,100	12,100
Pilotage fees.....	482,603	575,382	Ferry privileges.....	738	336
Pilot boat fees.....	27,020	237,930	Dredges and plants.....	28,911	79,104
Shipping fees.....	4,057	16,867			
Marine steamer earnings.....	2,598,157	5,732,976	Rents from water lots, etc.....	93,092	74,664
Signal station dues.....	1,560	1,352	Refunds of expenditure reported in previous years.....	33,780	1,180,263
Rentals—water lots and lighthouse sites.....	34,400	39,608	Sundry receipts, test borings, etc...	1,843	210
River St. Lawrence Ship Channel Service.....	123,785	—			
Sale of land, buildings, etc.....	6,940	7,434	Totals, Department of Public Works	526,508	1,697,771
Merchant seamen's identity certificates.....	1,101	1,035			
Miscellaneous.....	21,266	61,180			
Refunds previous year's expenditures.....	28,434	62,554	St. Lawrence Seaway Authority		
Port Warden fees.....	57,322	67,877	Tolls assessed.....	8,482,746	9,548,303
Board of Transport Commissioners	3,513	2,322	Rentals.....	498,293	593,699
Air Transport Board	234	36	Wharfage.....	177,405	150,550
			Miscellaneous.....	202,198	154,704
Totals, Department of Transport	4,821,849	8,190,733	Totals, St. Lawrence Seaway Authority	9,360,642	10,447,256

26.—Operating Revenue and Expenditure of Harbours, Elevators and Bridges under the National Harbours Board, 1959 and 1960

Harbour and Year	Operating Revenue	Operating Expenditure	Operating Income	Harbour and Year	Operating Revenue	Operating Expenditure	Operating Income
	\$	\$	\$		\$	\$	\$
Halifax—				Montreal—			
1959.....	1,698,760	1,628,924	269,836	1959.....	9,460,587	6,358,410	3,102,177
1960.....	2,056,895	1,887,424	169,471	1960.....	10,862,437	7,644,245	3,218,192
Saint John—				Prescott Elevator—			
1959.....	824,496	869,110	—44,614	1959.....	876,474	472,566	403,908
1960.....	973,481	959,037	14,444	1960.....	882,058	465,916	416,142
Chicoutimi—				Port Colborne Elevator—			
1959.....	118,420	41,584	76,836	1959.....	550,653	347,728	202,925
1960.....	120,428	44,608	75,820	1960.....	454,086	284,564	169,522
Quebec—				Churchill—			
1959.....	2,282,094	1,765,315	516,779	1959.....	1,403,205	1,164,376	238,829
1960.....	2,405,454	1,662,067	743,386	1960.....	1,306,339	1,142,219	164,120
Trois Rivières—				Vancouver—			
1959.....	449,026	123,207	325,819	1959.....	4,001,309	2,140,846	1,860,463
1960.....	603,169	109,118	494,051	1960.....	4,119,916	2,496,187	1,623,729
Jacques Cartier Bridge (Montreal)							
1959.....	2,354,815	699,598	1,655,217				
1960.....	3,354,276	738,556	2,615,720				

Shipping Subsidies.—Table 27 shows the net amounts of steamship subventions paid in connection with contracts made for the maintenance of essential coastal and inland water shipping services. The payment of these subventions is administered by the Canadian Maritime Commission under statutory authority.

27.—Steamship Subventions, Years Ended Mar. 31, 1961 and 1962

Service	1961	1962
	\$	\$
Western Local Services—		
Vancouver and Northern British Columbia ports.....	194,500	300,000
Vancouver and West Coast of Vancouver Island, B.C.....	88,000	88,000
Eastern Local Services—		
Baddeck and Iona, N.S.....	17,500	17,500
Campobello, N.B., and Lubec, Me., U.S.A.....	9,600	9,600
Cross Point, Que., and Campbellton, N.B.....	35,000	58,750
Dalhousie, N.B., and Miguasha, Que.....	27,500	27,500
Grand Manan and the mainland, N.B.....	95,000	95,000
Halifax, Canso, Guysborough and Isle Madame, N.S.....	29,110	30,000
Ile aux Coudres and Les Éboulements, Que.....	33,000	33,000
Ile aux Grues and Montmagny, Que. (summer).....	5,000	5,000
Ile aux Grues and Montmagny, Que. (winter).....	1,700	1,700
Magdalen Islands, Que., Cheticamp and Halifax, N.S.....	6,667	30,000
Mulgrave and Canso, N.S.....	54,900	52,400
Mulgrave, Queensport and Isle Madame, N.S.....	31,250	31,250
Murray Bay and North Shore of St. Lawrence (winter).....	50,000	35,000
Owen Sound and ports on Manitoulin Island and Georgian Bay, Ont.....	100,000	100,000
Pelée Island and the mainland, Ont.....	53,557	83,134
Pictou, Mulgrave and Cheticamp, N.S.....	15,426	—
Pictou, N.S., Charlottetown, P.E.I., and Magdalen Islands, Que.....	174,000	298,000
Portugal Cove and Bell Island, Nfld.....	—	274,385
Prince Edward Island and Newfoundland.....	72,000	72,000
Prince Edward Island and Nova Scotia.....	557,524	560,629
Prince Edward Island and North Shore of St. Lawrence River, Que.....	—	42,500
Quebec, or Montreal, Gaspé and Magdalen Islands, Que.....	492,923	492,923
Quebec, or Montreal, Gaspé and Magdalen Islands, Que.....	259,077	—
Rimouski, Matane and ports on North Shore of St. Lawrence River, Que.....	172,500	217,522
Rivière du Loup and St. Siméon, Que.....	21,000	21,000
St. Lawrence River and Gaspé ports to Chandler.....	—	45,000
Saint John, N.B., Tiverton, Freeport, Westport and Yarmouth, N.S.....	33,000	38,000
Sorel and Ile St. Ignace, Que.....	43,000	43,000
Sorel and Bay St. Lawrence.....	45,000	45,000
Trois Pistoles and Les Escoumains, Que.....	2,000	2,000
Yarmouth, N.S., and Rockland, Me., U.S.A.....	4,500	8,750
Father Point and Baie Comeau, Que.....	—	300,000
Newfoundland Coastal Steamship Services.....	4,069,002	4,555,793
Totals.....	6,793,236	8,014,336

PART V.—CIVIL AIR TRANSPORT

Administration.—Civil aviation in Canada is under the jurisdiction of the Federal Government and is administered under the authority of the Aeronautics Act 1919 and amendments thereto. The Aeronautics Act is in three parts. Broadly speaking, Part I deals with the technical side of civil aviation comprising matters of registration of aircraft, licensing of airmen, the establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. This Part of the Act is administered by the Director of Civil Aviation under the supervision of the Assistant Deputy Minister, Air Services, Department of Transport. Part II of the Act deals with the social and economic aspects of commercial air services and assigns to the Air Transport Board certain regulatory functions of commercial air services (see p. 761). Part III deals with matters of government internal administration in connection with the Act.

International Air Agreements.—The position of Canada in the field of aviation as well as its geographical location makes co-operation with other nations of the world engaged in international civil aviation imperative. Canada therefore took a major part in the original discussions that led to the establishment of the International Civil Aviation Organization (ICAO) which has headquarters at Montreal, Que. A special article on The International Civil Aviation Organization and Canada's Participation Therein appears in the 1952-53 Year Book, pp. 820-827. At present Canada has 21 air agreements with other countries; the only one to be signed in 1961 was with Mexico, signed Dec. 21, to replace the former agreement with that country signed on July 27, 1953.

Section 1.—Air Services

Air transport services may be grouped into two broad classes—Scheduled Services and Non-scheduled Services. Services in the first group are operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit. The second group includes the following:—

- (1) Regular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit.
- (2) Irregular Specific Point Air Services—operated by air carriers who offer public transportation of persons, mails and/or goods by aircraft from a designated base, serving a defined area or a specific point or points, at a toll per unit.
- (3) Charter Air Services—operated by air carriers who offer public transportation of persons and/or goods by aircraft from a designated base, at a toll per mile or per hour for the charter of the entire aircraft, or at such other tolls as may be permitted by the Air Transport Board.
- (4) Contract Air Services—operated by air carriers who do not offer public transportation but who transport persons and/or goods solely in accordance with one or more specific contracts.
- (5) Flying Clubs—operated by air carriers incorporated as non-profit organizations for the purpose of furnishing flying training and recreational flying to club members.
- (6) Specialty Services—operated by air carriers for purposes not provided for by any other class, such as flying training, recreational flying, aerial photography and survey, aerial pest control, aerial advertising, aerial patrol and inspection, etc.

Current operations of the two major airlines forming the nucleus of Canada's freight and passenger air service are outlined below.

Trans-Canada Air Lines.—On the threshold of its 25th anniversary, TCA in 1961 carried a record 3,712,068 passengers and flew almost 2,500,000,000 passenger-miles. Ton-miles of revenue commodity traffic, including express, totalled 24,091,000 and ton-miles of mail traffic totalled 11,934,000.

During the year, TCA introduced new North American passenger fares which gave Canadians the lowest general fare structure in the world. It began operating only DC-8 jets across the North Atlantic to Britain and Continental Europe early in the year, and introduced the turbo-prop Vickers Vanguard on transcontinental routes and on services to the United States and the Caribbean. During the summer months, TCA offered 508 transcontinental seats daily in each direction and more than 2,600 seats a week across the ocean. At the year-end, TCA was serving 59 communities in Canada, the United States, Britain, Continental Europe, Bermuda and the islands of the Caribbean over 39,000 miles of air routes.

TCA's fleet at the end of the year consisted of 10 DC-8's, 20 Vickers Vanguards, 49 Vickers Viscounts, 11 Super Constellations and two DC-3's. An additional DC-8 was delivered early in 1962 and all Super Constellations were retired from scheduled service. Three more Vanguards were scheduled for delivery in 1962 and four Douglas DC-8F's for delivery in 1963.

1.—Passenger, Freight and Mail Traffic of Trans-Canada Air Lines, 1952-61

SOURCE: Trans-Canada Air Lines Annual Report.

Year	Revenue Passenger Traffic ¹		Revenue Commodity Traffic ²		Mail Traffic
	No.	passenger-miles	lb.	ton-miles	ton-miles
1952.....	1,132,518	653,961,415	19,757,969	7,042,427	4,843,052
1953.....	1,307,810	759,319,800	22,906,531	7,947,113	5,373,841
1954.....	1,438,349	852,475,532	24,044,347	10,192,705	6,942,299
1955.....	1,682,195	969,392,395	30,889,383	12,175,433	7,704,144
1956.....	2,072,912	1,191,784,000	35,789,457	14,476,000	8,613,000
1957.....	2,392,713	1,385,777,000	23,987,486	15,478,000	9,855,000
1958.....	2,785,523	1,625,689,000	33,018,703	15,395,000	10,386,000
1959.....	3,209,197	1,828,902,000	37,997,398	17,753,000	10,905,000
1960.....	3,440,303	2,050,600,000	..	20,868,000	11,593,000
1961.....	3,712,068	2,481,122,000	..	24,091,000	11,934,000

¹ Includes non-scheduled service.² Includes excess baggage and express.**2.—Operating Revenue and Expenditure of Trans-Canada Air Lines, 1952-61**

SOURCE: Trans-Canada Air Lines Annual Report.

Year	Passenger	Freight ¹	Mail	Operating Revenue ²	Operating Expenditure	Operating Surplus
	\$	\$	\$	\$	\$	\$
1952.....	42,022,616	3,730,521	7,698,641	55,057,708	52,744,741	+2,312,967
1953.....	48,242,942	4,111,456	7,786,119	62,236,564	61,433,700	+802,864
1954.....	53,123,868	4,705,513	8,371,344	68,764,252	67,731,512	+1,032,740
1955.....	61,105,243	6,015,910	8,297,605	77,428,254	76,770,922	+657,332
1956.....	74,478,516	6,769,395	8,869,934	91,306,046	89,197,115	+2,108,931
1957.....	86,523,981	6,392,156	9,662,585	104,995,707	96,680,353	+8,315,354
1958.....	101,553,258	7,513,511	9,893,622	120,554,769	108,129,734	+12,425,035
1959.....	114,338,529	8,306,727	9,986,475	134,678,748	120,120,189	+14,558,559
1960.....	127,595,694	9,063,039	10,244,192	148,986,526	134,262,645	+14,723,881
1961.....	143,301,442	9,219,972	10,245,935	165,435,708	143,370,168	+22,065,540

¹ Express and excess baggage.² Includes other revenue.

Canadian Pacific Air Lines Limited.—Canadian Pacific Air Lines operates a 45,287-mile route pattern linking five continents as well as major cities in Canada. This pattern comprises 6,900 domestic route miles, including 2,450 miles on Canadian mainline service.

In 1961, CPA carried 380,919 passengers, a greater number than in any other year since the company's inception in 1942. The increase in passenger load, on both domestic and international routes, amounted to 10.9 p.c. over 1960. As a result of this increase in the number of passengers carried, the revenue passenger-miles showed a corresponding advance to 603,481,033—a 10.1-p.c. increase over 1960.

CPA's international routes, 37,600 miles in extent, operate from Vancouver to Honolulu, Fiji, New Zealand and Australia on the South Pacific service; to Japan and Hong Kong via the Great Circle Route across the North Pacific; from Vancouver, Calgary and Edmonton to Amsterdam via the Polar Route; and across the Atlantic from Montreal to Portugal, Spain and Italy. A South American network serves Mexico City, Lima, Santiago and Buenos Aires. Three services link Mexico with Windsor, Toronto and Montreal in Eastern Canada and Vancouver in the West. In Canada, CPA operates a mainline trans-continental service linking Vancouver, Winnipeg, Toronto and Montreal and a domestic network of north-south routes in British Columbia, Alberta and the Yukon Territory.

CPA's fleet of aircraft consists of four Super DC-8's, six Bristol Britannias, two DC-6B's, five Convair 240's, three DC-3's and two C-46's. The international routes are served by the DC-8 jetliners and the Bristol Britannias.

Independent Airlines.—In addition to the two major Canadian air carriers—Trans-Canada Air Lines and Canadian Pacific Air Lines Limited—there are four domestic air carriers licensed to operate scheduled commercial air services in Canada, namely, Maritime Central Airways Limited, Charlottetown, P.E.I.; Quebecair, Inc., Rimouski, Que.; TransAir Limited, Winnipeg, Man.; and Pacific Western Airlines Limited, Vancouver, B.C.

Licensed Canadian air carriers operating in Canada as at Mar. 31, 1961 held valid operating certificates covering 43 scheduled, 140 flying training, and 1,153 other non-scheduled and specialty services. These non-scheduled services, in addition to providing effective access to sections of Canada that are inaccessible by other means of transportation, act as feeder lines to the scheduled airlines. They also include such specialty services as recreational flying, aerial photography and surveying, aerial pest control, aerial advertising and aerial patrol.

Maritime Central Airways Limited.—Maritime Central Airways operates throughout the Atlantic Provinces, the Gulf of St. Lawrence area and the Eastern Arctic, serving Charlottetown and Summerside in Prince Edward Island; Moncton in New Brunswick; New Glasgow and Halifax in Nova Scotia; Stephenville, Gander and St. John's in Newfoundland; Goose Bay and Saglek in Labrador; Frobisher in the Northwest Territories; the Magdalen Islands and Sept Îles in Quebec; and the French Islands of St. Pierre-Miquelon in the Atlantic.

The Airways fleet consists of two DC-4's, four C-46's, four DC-3's and two Beechcraft. Two Handley Page Dart Herolds will be placed in operation in the summer of 1962. The company operates daily scheduled flights throughout the above area and carries on an extensive contract freight operation between the Atlantic Provinces and the Eastern Arctic; the latter service accounts for a large portion of the company's revenue.

Quebecair, Inc.—Quebecair, a privately owned commercial airline with headquarters at Rimouski, serves various points in the Province of Quebec including Montreal, Quebec, Saguenay, Rivière du Loup, Rimouski, Mont Joli, Sept Îles, Wabush, Schefferville, Gagnon, Baie Comeau, Forestville and Manicouagan. No point served is more than five flying hours from Montreal.

The company began operations in 1946 under the name of Rimouski Aviation Syndicate and was incorporated under the name of Rimouski Airlines in 1947. At the beginning of 1954, the newly created Rimouski Airlines bought out Gulf Aviation and formed Quebecair. Since then, passenger service has multiplied six times, air mail carried fourteen times and freight carried sixteen times. The number of passengers flown in 1961 was 108,647 and the amount of freight carried totalled 3,831,135 lb.

The Quebecair fleet consists of five DC-3's, three F-27's, and one C-46 cargo aircraft.

Pacific Western Airlines Limited.—Pacific Western Airlines Limited, with head office at Vancouver International Airport, is one of the largest independent air carriers in Canada. Total route miles in the system is close to 7,200 and services operated include scheduled mainline, local regular unit toll and charter flights in Saskatchewan, Alberta, Yukon Territory, the Northwest Territories including the Arctic Islands, and British Columbia.

Regularly scheduled mainline services are operated by Pacific Western northbound from Edmonton to Peace River, McMurray, Uranium City, Fort Smith, Fort Resolution, Fort Vermilion, Hay River, Yellowknife, Fort Simpson, Wrigley, Norman Wells and Inuvik. Regular local services are flown from Yellowknife to Cambridge Bay; and from Inuvik to Aklavik to Fort McPherson to Arctic Red River. Local services also originate from Norman Wells to Fort Good Hope, Fort Norman, Wrigley and Fort Simpson; and from Yellowknife to Rocher River, Port Radium, Coppermine and Bathurst.

On the prairies, mainline service is scheduled between Regina, Saskatoon, Prince Albert, North Battleford and Edmonton. On the Pacific Coast, mainline services are operated from Vancouver to Comox, Powell River, Campbell River, Tofino and Port Hardy and local services are operated between Prince Rupert, Stewart, Ford's Cove, Anyox, Maple Bay and Alice Arm in northern British Columbia. In addition, charter services are operated out of Vancouver, Nelson, Kamloops, Prince George, Terrace and Prince Rupert; in the Northern Division from Edmonton, Peace River, Fort Smith, Hay River, Yellowknife, Inuvik and Cambridge Bay.

Aircraft operated by Pacific Western number 48 and range from DC-4's, Super 46's and DC-3's on mainline services, to Otters, Beavers and Cessnas on charter and freight flights. Revenue passengers carried in 1961 totalled 149,903, freight and express carried amounted to 18,403,781 lb. and miles flown numbered 5,725,104.

TransAir Limited.—TransAir Limited operates scheduled, charter and sports-men's flights in Manitoba, Ontario and the Northwest Territories as well as in the State of Minnesota, U.S.A. Thirty aircraft are in service from headquarters in Winnipeg and a major base at Churchill. Scheduled flights also originate from bases at Pickle Lake and Sioux Lookout in Ontario, Lac du Bonnet, Norway House, Flin Flon, Lynn Lake and Wabowden, in Manitoba, to adjacent points. The airline has scheduled DC-3 and DC-4 services over 2,852 unduplicated route miles. Mainline stops are made at Winnipeg, Dauphin, The Pas, Flin Flon, Lynn Lake, Churchill, Thompson, Red Lake, Winisk, Ottawa, Montreal and International Falls. TransAir also has regular flights between Churchill and Rankin Inlet, Baker Lake and Coral Harbour in the Northwest Territories. From its Winnipeg and Churchill bases, TransAir operates the vertical re-supply flights to the four main sites in the Canadian Sector of the Distant Early Warning Line. The company's head office is at Winnipeg International Airport.

Commonwealth and Foreign Scheduled Commercial Air Services.—At the end of 1960 there were 18 Commonwealth and foreign air carriers holding valid Canadian operating certificates and licences covering international scheduled commercial air services operating into Canada, as follows:—

Air France (Compagnie Nationale Air France) operates between Paris and other points in Metropolitan France, Montreal Canada, Chicago and Los Angeles U.S.A., and points beyond.

Alitalia Airlines operates between Rome Italy, Milan Italy, Montreal Canada and Chicago U.S.A.

American Airlines, Inc. operates between Toronto Canada, and New York/Newark, via Buffalo U.S.A.

British Overseas Airways Corp. operates between London England, Manchester England, Prestwick Scotland, Shannon Ireland, Gander Canada, Montreal Canada, and Toronto Canada; and between London England, Montreal Canada, and Bermuda, the Bahamas and Jamaica.

Eastern Air Lines, Inc. operates between the terminals Ottawa Canada and Montreal Canada and New York U.S.A., direct or via Burlington Vt., U.S.A.; and between the terminals Ottawa Canada and Montreal Canada, and Washington U.S.A., direct or via Massena and/or Syracuse N.Y., U.S.A.

KLM Royal Dutch Airlines operates between Amsterdam the Netherlands, and Montreal Canada.

Lufthansa German Airlines operates between Hamburg Germany and other points abroad, Montreal Canada and San Francisco U.S.A.

North Central Airlines, Inc. operates between Duluth, Minn./Superior, Wis., Hancock/Houghton, Mich., U.S.A., and Port Arthur/Fort William Canada.

Northeast Airlines, Inc. operates between Montreal Canada, and Boston U.S.A., via Burlington, Vt., Montpelier-Barre, Vt., White River Junction, Vt. (Lebanon Airport, N.H.), and Concord, N.H., U.S.A.

Northwest Airlines, Inc. operates between Winnipeg Canada, and Fargo, N.D., U.S.A.; and between Minneapolis, St. Paul U.S.A., Edmonton Canada, Anchorage Alaska, and beyond.

- Pan American World Airways Inc.* operates between Seattle, Wash., and Fairbanks, Alaska, U.S.A. with points of call at Juneau and Annette Island, Alaska, and Whitehorse, Y.T., Canada; and between points in the United States, Gander Canada, and Europe.
- Qantas Empire Airways Ltd.* operates between Sydney Australia, San Francisco U.S.A., and Vancouver Canada.
- Sabena Belgian World Airlines* operates between Brussels Belgium, Shannon Ireland, and Montreal Canada.
- Seaboard and Western Airlines, Inc.* operates between points in the United States, Gander Canada, and beyond.
- TWA (Trans-World Airlines, Inc.)* operates between points in the United States, Gander Canada, and points abroad.
- United Air Lines, Inc.* operates between Vancouver Canada, and Seattle U.S.A., via Bellingham U.S.A.
- West Coast Airlines, Inc.* operates between Spokane, Wash., U.S.A., and Calgary Canada.
- Western Air Lines, Inc.* operates between Great Falls, Mont., U.S.A., Calgary Canada and Edmonton Canada.

Flying Schools and Clubs.—At the end of 1961, 79 commercial flying schools were registered as members of the Air Industries and Transport Association. During the year, these schools instructed and graduated 1,638 students as private pilots and 142 students as commercial pilots.

Membership in the 39 flying clubs connected with the Royal Canadian Flying Clubs Association numbered 10,504 at the end of 1961. During the year these clubs instructed and graduated 1,473 students as private pilots and 90 students as commercial pilots.

Weather Services.—Weather services are provided by the Meteorological Branch, Department of Transport, to meet the demands of the general public and all basic economic endeavours such as agriculture, industry, forestry, shipping and fishing. Meteorological service is provided to national and international aviation. The military meteorological requirements in Canada and overseas are met by special co-operative arrangements with the Department of National Defence. The observing and forecasting of ice conditions in navigable waters, both inland and coastal, are rapidly expanding services.

There are 53 forecast offices in Canada, one on shipboard and four in Europe. Forecast offices are linked by 54,000 miles of teletype and radio-teletype circuits, and a national facsimile system 13,000 miles long is used for the distribution of meteorological information in chart form. As of Jan. 1, 1962, the Branch maintained 270 surface synoptic and hourly weather reporting stations, a network of 31 radiosonde stations including five in the Arctic operated jointly with the United States, 87 stations recording upper winds, and 1,732 climatological stations. One Ocean Weather Station in the Pacific, 1,000 miles west of Vancouver, is maintained under International Agreement. (See also pp. 43-44.)

Ground Facilities.—Aircraft landing areas in Canada are classified in Table 3 by administrative agency, as licensed or unlicensed land facilities or seaplane bases, and military air fields. The unlicensed aerodromes and seaplane bases shown are kept in varying degrees of readiness but lack one or more of the facilities usually found in licensed airports, such as lights, passenger accommodation, ground/air communication, etc. Associated with these facilities is a network of radio aids to navigation designed to facilitate en route navigation and safe landings under low visibility conditions.

As at February 1962, the Department of Transport operated 93 low frequency radio ranges (12 of which were scheduled to be downgraded to non-directional radio beacons during 1962) and 34 VHF omni-directional ranges (13 additional ranges were under construction). Instrument landing systems in operation totalled 35 (one of which was scheduled for decommissioning and 12 additional systems were under construction) and there were 155 non-directional radio beacons in operation (an additional 31 were under construction). These facilities are regularly calibrated and flight-checked by civil aviation inspectors.

3.—Aircraft Landing Areas classified by Type of Facility and Operator, by Province, as at February 1962

Type of Facility and Operator	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Licensed Airports (Land)—													
Department of Transport..	1	1	3	2	8	21	2	4	6	20	11	5	84
Municipal.....	—	—	2	1	15	19	5	20	16	15	—	2	95
Private.....	1	2	—	—	18	38	2	8	14	2	—	1	86
Unlicensed Aerodromes—													
Department of Transport..	1	—	—	—	2	10	1	2	—	11	5	4	36
Municipal.....	3	—	2	—	9	3	3	33	7	13	—	3	76
Private.....	4	—	1	14	30	12	32	104	26	36	7	1	267
Abandoned or unknown....	5	—	1	—	11	2	—	3	—	40	—	3	65
Licensed Seaplane Bases—													
Department of Transport..	—	—	—	—	—	—	—	—	—	2	—	—	2
Municipal.....	—	—	1	—	—	21	1	6	1	9	—	1	40
Private.....	5	—	3	1	57	82	31	6	4	30	11	4	234
Unlicensed Seaplane Bases—													
Department of Transport..	—	—	—	—	—	—	—	—	1	15	1	—	17
Municipal.....	—	—	1	1	—	9	7	5	3	3	1	—	30
Private.....	6	—	2	19	15	8	1	5	15	26	—	—	97
Abandoned or unknown....	16	1	8	4	24	13	11	10	4	26	19	6	142
Military Airfields—													
RCAF.....	3	1	1	2	8	16	6	3	8	1	21	2	72
Army.....	—	—	—	—	—	—	—	—	2	—	—	—	2
RCN.....	—	—	3	—	—	—	—	—	—	—	—	—	3
U.S. Navy.....	1	—	—	—	—	—	—	—	—	—	1	—	2
U.S. Air Force.....	2	—	—	—	—	—	1	—	—	1	—	—	4
Totals, Land Bases.....	15	3	9	17	93	165	45	174	69	137	23	19	709
Totals, Seaplane Bases..	27	1	13	8	100	140	58	28	18	100	58	11	562
Totals, Military Airfields	6	1	4	2	8	16	7	3	10	2	22	2	83
Grand Totals.....	48	5	26	27	201	261	110	205	97	239	103	32	1,354

Air Traffic Control.—The primary functions of the Air Traffic Control Division of the Department of Transport are to expedite and maintain an orderly flow of air traffic and to prevent collision between aircraft operating within controlled air space, and between aircraft and obstructions on the movement area of controlled airports. This is accomplished through airport control, terminal control and area control services, together with flight information, alerting for search and rescue, customs notification and aircraft identification. These services are described below.

Airport Control is designed particularly to provide air traffic control service in the vicinity of major civil airports where the volume and type of aircraft operations, weather conditions and other factors indicate its need in the interests of safety. The service includes the control of pedestrians and vehicles on the manoeuvring area of the airport. Control is effected by means of direct radiotelephone communication or visual signals to aircraft and surface vehicles on and in the vicinity of controlled airports. The control towers are located at Whitehorse, Y.T.; Victoria (International), Port Hardy, Abbotsford and Vancouver, B.C.; Lethbridge, Calgary, Edmonton (Municipal) and Edmonton (International), Alta.; Saskatoon and Regina, Sask.; Winnipeg (International), Man.; Lakehead, Windsor, London, Toronto Island, Toronto (International), Ottawa and North Bay, Ont.; Montreal (International), Cartierville, Quebec, Val d'Or, Baie Comeau and Sept Îles, Que.; Moncton, Fredericton and Saint John, N.B.; Halifax (International) and Sydney, N.S.; Gander, Nfld.; and Frobisher, N.W.T. Most of the control towers are in continuous operation but a few provide 16-hour daily service only.

Terminal Control service consists of the provision of standard IFR separation to aircraft operating in accordance with Instrument Flight Rules within the local terminal control area, (which is generally within a 30-mile to 40-mile radius of the airport). Such service is provided by terminal control units at Vancouver, B.C.; Edmonton and Calgary, Alta.; Saskatoon and Regina, Sask.; Winnipeg, Man.; Lakehead, Toronto, Ottawa and North Bay, Ont.; Quebec and Montreal, Que.; Halifax (International), N.S.; Gander, Nfld.; and Frobisher, N.W.T.

Area Control is designed particularly to provide air traffic control service to aircraft operating within controlled airspace during weather conditions which prevent a pilot from seeing other aircraft or obstructions and necessitate his reliance on instruments to conduct the flight. Control centres are located at Vancouver, B.C.; Edmonton, Alta.; Winnipeg, Man.; Toronto, Ont.; Montreal, Que.; Moncton, N.B.; and Goose Bay and Gander, Nfld. Each centre is connected with the control towers, radio range stations and operations offices within its area by means of an extensive system of local and long-line interphone or radio circuits, and through the radio communication facilities available at these offices to all aircraft requiring area control service. Each area control centre is similarly connected with the adjacent centres, including centres in the United States, for the purpose of co-ordinating the control of aircraft operating through more than one control area. This communications system permits each centre to maintain a continuous detailed record of the movements of all aircraft operating in accordance with the Instrument Flight Rules, and a general record of the movements of all aircraft operating in accordance with Visual Flight Rules within its control area. In addition to providing area control service to aircraft operating within the controlled airspace over Newfoundland, the Goose and Gander control centres provide this service within the airspace over approximately one-half of the North Atlantic Ocean. The Vancouver area control centre also provides control service over the Pacific Ocean within the Vancouver Oceanic Control Area. Area control service is provided for approximately 16,000 miles of airways and control channels.

Radar Service aids in the control of both terminal and en route IFR traffic at certain locations. Terminal radar service is provided by the following terminal control units: Vancouver, B.C.; Calgary and Edmonton, Alta.; Regina and Saskatoon, Sask.; Winnipeg, Man.; Lakehead, Toronto and Ottawa, Ont.; Montreal and Quebec, Que.; Halifax, N.S.; and Gander, Nfld. In addition to an en route radar facility located at Kenora, Ont., further en route radar control service is provided by the following area control centres: Goose and Gander, Nfld.; Moncton, N.B.; Montreal, Que.; Winnipeg, Man.; and Vancouver, B.C.

Flight Information provides advice and information useful for the safe and efficient conduct of flight, including weather reports and forecasts, field condition reports, data concerning aids to navigation, traffic information, refuelling and transportation facilities and other related data or assistance to the pilot in planning or conducting a flight. Such service is provided by all air traffic control units but particularly by the eight area control centres.

Alerting for Search and Rescue is designed to ensure that the appropriate organizations are notified of aircraft in need of search and rescue and otherwise to alert such organizations promptly of non-arrival at destination of any aircraft for which a flight plan or flight notification has been received. This requires the maintenance and constant supervision of a continuous record of active flights to ensure that non-arrival of any aircraft is detected immediately. This service is available to any pilot who files either a flight plan or a flight notification with any communications agency of the Air Services of the Department or directly with one of the area control centres or control towers.

Customs Notification Service facilitates the routine notification of the appropriate customs agency by pilots who plan to cross the Canada-United States boundary. The Air Traffic Control communications system and units concerned therewith forward pilot requests to notify the customs officer at the airport of destination.

Aircraft Movement Information Service is provided by area control centres to assist the Department of National Defence in establishing the identification of all aircraft operating within specified areas.

The number of controlled operations in Canada during 1961 was 2,409,099.

Section 2.—Civil Aviation Operation Statistics

Table 4 gives data on miles and hours flown, traffic carried, fuel and oil consumed, employees, salaries and operating revenues and expenses, by type of service, for Canadian air carriers followed by summary statistics for both Canadian and foreign air carriers operating in Canada. Figures for Canadian carriers include domestic and international operations, and figures for foreign companies cover miles and hours flown over Canadian territory only and exclude passengers and goods in transit through Canada. Unit toll service refers to the transportation of passengers or goods at a toll per unit, whereas bulk service is the transportation of passengers or goods at a toll per mile or per hour for the entire aircraft. Other flying services comprise non-transportation services such as flying training, aerial photography and aerial patrol and inspection.

4.—Summary Statistics of Civil Aviation, 1956-60

Item	1956	1957	1958	1959	1960
Canadian Carriers—					
Unit Toll Transportation (revenue traffic only)—					
Hours flown.....No.	288,120	314,075	323,972	350,019	383,181
Miles flown....."	56,067,785	64,472,262	69,438,086	77,405,581	80,246,283
Passengers carried....."	2,796,841	3,217,266	3,599,365	4,176,501	4,218,431
Cargo and excess baggage carried lb.	63,117,432	61,692,930	63,761,034	76,464,625	80,152,652
Mail carried....."	25,570,279	29,263,675	31,387,841	32,894,779	34,633,139
Passenger-miles.....No.	1,480,639,773	1,737,582,244	2,036,163,546	2,357,386,420	2,671,926,081
Cargo and excess baggage ton-miles....."	21,316,572	23,587,208	25,385,836	29,505,264	35,316,334
Mail ton-miles....."	9,894,104	11,447,229	12,225,661	13,115,587	13,706,091
Bulk Transportation (revenue traffic only)—					
Hours flown.....No.	343,316	298,941	293,380	259,188	230,670
Miles flown....."	42,369,709	36,743,407	26,372,480	28,701,522	23,938,740
Passengers carried....."	523,864	509,337	423,572	504,763	508,984
Freight carried.....lb.	246,885,703	194,456,192	128,006,002	126,523,737	123,200,348
Other Flying Services (revenue traffic only)—					
Hours flown.....No.	87,920	113,271	135,587	155,022	81,059
Canadian Carriers, All Services—					
Revenue Traffic—					
Hours flown.....No.	719,356	726,287	692,939	764,229	694,910
Miles flown....."	98,437,494	101,215,669	95,810,566	106,107,103	104,185,023
Passengers carried....."	3,320,705	3,726,603	4,022,937	4,681,264	4,727,415
Cargo and excess baggage carried lb.	310,003,135	256,149,122	191,767,036	202,988,362	203,353,000
Goods carried (incl. mail)....."	335,573,414	285,412,797	223,154,877	235,888,141	237,986,139
Non-revenue Traffic—					
Hours flown.....No.	37,478	40,641	35,427	31,624	24,251
Passenger-miles....."	58,886,228	69,097,794	84,572,322	100,192,596	127,072,658
Goods ton-miles....."	2,863,082	2,844,976	3,296,840	4,287,822	5,244,953
Fuel consumed.....gal.	83,430,347	94,581,917	106,118,520	122,055,240	139,425,893
Oil consumed....."	1,002,674	1,000,998	897,280	889,423	812,232
Average employees.....No.	14,848	16,014	15,990	16,565	17,106
Salaries and wages paid.....\$	65,240,831	75,313,556	80,235,145	86,148,440	95,650,809
Operating revenues.....\$	182,168,850	190,043,065	201,713,936	220,423,558	235,973,562
Operating expenses.....\$	174,581,980	189,413,789	200,278,225	219,487,993	237,714,284
Canadian and Foreign Carriers—					
All Services (revenue traffic only)—					
Hours flown.....No.	734,822	742,056	709,337	798,527	712,371 ¹
Miles flown....."	101,723,710	104,699,140	99,858,279	110,889,252	109,699,725
Passengers carried....."	3,864,818	4,319,920	4,555,251	5,316,001	5,451,716
Cargo and excess baggage carried lb.	319,260,401	264,812,177	200,388,312	214,391,889	217,220,865
Mail carried....."	27,914,288	31,413,504	33,628,013	35,558,226	37,579,496
Unit Toll Transportation (revenue traffic only)—					
Passenger-miles.....No.	1,547,279,882	1,835,183,870	2,142,276,186	2,495,682,456	2,847,022,735
Cargo and excess baggage ton-miles....."	22,065,286	24,456,122	26,447,626	31,296,521	39,044,787
Mail ton-miles....."	10,238,458	12,055,649	13,037,645	13,702,638	14,321,366

¹ Includes other flying services.

Summary statistics of Canadian and foreign commercial air carriers, by type of carrier, are given for 1960 in Table 5. No breakdown between the domestic and the international operations of the Canadian carriers is available for bulk services. For the foreign carriers, hours and miles reported are those flown over Canadian territory only and passengers and goods in transit through Canada are excluded.

It is interesting to note that 90.5 p.c. of all revenue passengers carried in 1960 were transported on unit toll service and that 55.7 p.c. were transported on domestic services of Canadian scheduled carriers. On the other hand, 51.6 p.c. of all freight carried was transported on unit toll service and 45.0 p.c. by the non-scheduled Canadian carriers.

5.—Summary Statistics of Canadian and Foreign Commercial Air Carriers, by Type, 1960

Item	Canadian Carriers		Foreign Carriers		Total Carriers	
	Scheduled		Non-scheduled	United States		Other Foreign
	Domestic Services	International Services				
Unit Toll Transportation (revenue traffic only)—						
Hours flown.....No.	248,333	103,151	31,697	6,863	10,019	400,063
Miles flown....."	50,799,119	25,542,165	3,904,999	1,695,121	3,657,701	85,599,105
Passengers carried....."	2,974,397	1,119,683	124,351	556,386	156,320	4,931,137
Freight carried.....lb.	90,873,843	14,465,680	9,446,318	9,112,225	7,671,061	131,569,077
Passenger miles.....No.	1,630,102,168	1,022,082,097	19,791,816	30,859,209	144,237,445	2,847,022,735
Freight ton-miles....."	31,461,727	15,308,474	2,259,224	276,711	4,067,017	53,366,153
Bulk Transportation (revenue traffic only)—						
Hours flown.....No.	31,836		198,534	7	572	231,249
Miles flown....."	4,396,097		19,542,643	1,951	159,929	24,100,620
Passengers carried....."	80,936		448,048	1,203	10,392	520,579
Freight carried.....lb.	17,973,846		105,226,502	30,936	—	123,231,284

6.—Capital Investment of the Department of Transport in Air Services, as at Mar. 31, 1959-61

Item	1959	1960	1961	Total as at Mar. 31, 1961
	\$	\$	\$	\$
Civil Aviation Branch—				
Airports and other Ground Services—				
Capital appropriations.....	53,170,767	52,467,712	52,898,642	479,180,581
Transferred from other government departments..	6,578,383	—	15,072,171	
Transferred to Crown Assets Disposal Corpora- tion	Cr. 1,710,114	Cr. 1,851,007	Cr. 2,991,084	
Property retired, etc.....	Cr. 2,617,955	Cr. 295,740	Cr. 25,000	
Telecommunications and Electronics Branch—				
Radio Aids to Air and Marine Navigation—				
Capital appropriations.....	10,979,104	9,998,792	8,815,328	74,930,625
Property transferred to Crown Assets Disposal Corporation.....	Cr. 82,600	Cr. 17,560	—	
Property retired, etc.....	Cr. 43,058	Cr. 43,147	—	
Radio Act and Regulations—				
Capital appropriations.....	378,767	389,381	276,939	3,045,988
Property retired, etc.....	Cr. 73,786	—	—	
Telegraph and Telephone Service—				
Capital appropriations.....	—	3,771,237	202,822	3,974,059
Northwest Communication System—				
Capital appropriations.....	Cr. 48,321	—	—	—
Transferred to Canadian Government Railways..	Cr. 17,833,076	—	—	
Meteorological Branch—				
Capital appropriations.....	673,070	1,248,648	1,178,054	10,525,230
Transferred from other government departments...	22,297	75,054	—	
Totals.....	49,393,478	65,743,370	75,427,872	571,656,483

7.—Expenditure and Revenue of the Department of Transport in connection with Air Services, Years Ended Mar. 31, 1959-61

Item	1959	1960	1961
	\$	\$	\$
Expenditure			
Air Transport Board	335,943	375,166	590,890
Air Services	3,079,562	4,063,675	4,818,175
General Administration.....	1,121,296	1,316,009	1,564,429
Construction Services Administration.....	1,958,266	2,747,666	3,253,746
Civil Aviation Branch	21,609,808	24,963,651	29,958,090
Control of Civil Aviation.....	1,628,972	2,254,026	2,835,305
Airports and other ground services—operation and maintenance....	14,433,172	16,678,285	19,208,000
Airway and airport traffic control—operation and maintenance....	4,474,805	5,126,621	6,802,517
Contributions to other governments or international agencies for the operation and maintenance of airports.....	231,669	246,439	218,705
Contributions to municipalities or public bodies for construction or improvements of airports on land acquired by such organizations....	75,949	12,641	60,273
Contributions toward airport development and other airport projects on cost-sharing basis.....	231,059	85,929	193,890
Grants to organizations for development of civil aviation.....	529,800	559,710	639,400
Payment to B.C. airlines for loss sustained in providing winter services to West Coast communities Jan. 1 to Mar. 31, 1958.....	4,382	—	—
Telecommunications and Electronics Branch	16,518,880	18,448,097	20,611,217
Radio aids to air and marine navigation—administration, operation and maintenance.....	14,028,182	15,833,875	17,717,469
Radio Act and Regulations—administration, operation and maintenance.....	2,235,237	2,403,875	2,731,535
Northwest Communication System—			
Adjustment—Stores Account.....	5,899	—	—
Telegraph and Telephone Service—administration, operation and maintenance.....	249,562	210,347	162,213
Meteorological Branch	11,139,319	12,024,755	15,059,297
Administration, operation and maintenance.....	11,139,319	12,017,700	15,058,291
Gift of furnishings to the headquarters of the World Meteorological Organization at Geneva, Switzerland.....	—	7,055	1,006
Totals, Expenditure	52,683,512	59,875,344	71,037,669
Revenue and Receipts			
Air Services Administration	7,058	5,054	8,607
Construction Branch Administration	—	2,309	947
Civil Aviation Branch	8,759,130	9,457,898	11,494,911
Private air pilots' certificates.....	22,928	23,676	25,600
Airport licence fees.....	571	671	691
Aircraft registration certificates.....	9,516	10,451	11,920
Airworthiness certificates.....	3,369	3,307	4,020
Aircraft earnings.....	—	—	—
Fines, Aeronautics Act.....	6,936	2,775	5,767
Miscellaneous.....	176	89	146
Land rental.....	191,084	297,091	366,994
Rentals—			
Living quarters.....	412,673	437,730	402,514
Public address system.....	2,441	3,264	7,750
Hangar.....	220,403	211,196	222,386
Office, shop and garage space.....	542,415	649,961	773,585
Equipment.....	50,342	10,215	14,795
Restaurant and snack bars.....	40,725	79,955	114,249
Miscellaneous.....	52,093	33,905	127,444
Concessions—			
Gasoline and oil.....	1,054,779	1,164,385	1,371,380
Taxi.....	74,555	81,071	124,081
Restaurant and snack bars.....	56,300	65,368	81,135
Telephone.....	16,282	20,247	27,881
Car parking areas.....	193,229	273,442	358,697
Car rentals.....	58,344	79,231	105,929
Miscellaneous.....	137,672	180,715	294,998
Aircraft landing fees.....	4,564,357	4,645,709	4,820,617
Aircraft parking and handling.....	67,580	55,304	63,891

**7.—Expenditure and Revenue of the Department of Transport in connection with
Air Services, Years Ended Mar. 31, 1959-61—concluded**

Item	1959	1960	1961
	\$	\$	\$
Revenue and Receipts—concluded			
Civil Aviation Branch—concluded			
Power services.....	134,924	133,796	131,591
Mess receipts.....	79,563	54,892	55,973
Telephone service.....	20,726	27,928	3,611
Observation roof—turnstiles.....	47,750	55,250	75,831
Warehousing.....	9,800	16,334	32,277
Hangar storage space.....	88,189	97,712	80,889
Hangar heating.....	11,333	17,456	4,356
Sanitary fees.....	5,932	23,236	36,850
Sales—			
Water.....	54,587	52,152	55,381
Land and buildings.....	6,035	8,767	27,032
Miscellaneous.....	4,996	5,022	8,181
Car parking meters.....	—	17,520	29,531
Gander Airport—			
Coal sales.....	17,403	15,125	5,088
Heating.....	48,864	21,394	4,265
Electricity.....	153,066	49,096	43,119
Recoverable services.....	30,274	24,162	12,528
Miscellaneous.....	1,482	—	—
Net profit commercial caterers.....	11,909	—	—
Interest on investment.....	—	10,700	10,263
Air route facilities fees.....	—	28,608	992,399
Air Traffic Control Division.....	10,498	10,493	15,435
Sundry services.....	85,361	185,786	171,508
Sundries.....	58,910	18,128	28,624
Refunds, previous year's expenditure.....	96,278	251,533	343,709
Telecommunications and Electronics Branch.....	2,060,969	2,860,981	3,883,597
Air-ground radio services.....	842,468	891,480	996,630
Communication facilities.....	—	2,093	2,152
Fines and forfeitures.....	29	1,262	616
Government telegraph and telephone tolls.....	57,136	26,505	21,643
Message tolls.....	480,788	425,227	419,062
Mess receipts.....	111	1,083	473
Northwest Communication System.....	1,570	—	—
Private commercial broadcasting station licence fees.....	—	526,940	1,266,128
Radio operators' examination fees.....	5,710	5,486	6,644
Radio station licence fees.....	271,458	313,017	360,328
Rentals—			
Living quarters.....	285,890	367,675	364,988
Space control lines and power.....	30,610	54,704	72,273
Public address system.....	—	3,586	—
Miscellaneous.....	6,477	1,113	10,655
Sales—			
Land and buildings.....	43,590	120,340	225,916
Power services.....	1,424	2,818	6,973
Publications.....	4,068	3,000	3,624
Miscellaneous.....	250	1	5,000
Telephone service.....	—	39,976	34,109
Miscellaneous.....	354	2,073	12,333
Refunds of previous years' expenditure.....	29,036	72,602	74,050
Meteorological Branch.....	147,940	176,753	213,889
Communication facilities.....	322	324	380
Mess receipts.....	1,755	1,181	1,528
Power services.....	3,094	3,125	8,426
Radio commercial message tolls—DOT operated stations.....	2,486	720	—
Rentals—			
Living quarters.....	95,859	120,416	137,634
Office, shop and garage space.....	5,691	4,457	7,430
Miscellaneous.....	198	2,435	2,708
Sales—			
Land and buildings.....	150	850	—
Publications.....	1,275	4,053	2,419
Sundry services.....	4,447	15,774	3,400
Miscellaneous.....	1,084	4,071	237
Refunds of previous years' expenditure.....	31,579	19,347	49,727
Totals, Revenue and Receipts.....	10,975,097	12,502,995	15,601,951

The cost of property and equipment of Canadian commercial air carriers, at both the beginning and the end of 1960, is given in Table 8. Separate figures are shown for scheduled and for other carriers.

8.—Cost of Property and Equipment for Canadian Scheduled and Other Commercial Air Carriers, 1960

Item	Scheduled Carriers		Other Carriers		Totals	
	Beginning of Year	End of Year	Beginning of Year	End of Year	Beginning of Year	End of Year
	\$	\$	\$	\$	\$	\$
Operating Property and Equipment—						
Flight equipment.....	79,430,625	124,395,603	9,430,296	11,013,189	88,860,921	135,408,792
Ground equipment.....	9,411,248	15,450,181	497,946	640,351	9,909,194	16,090,532
Buildings and other improvements	9,160,877	33,476,531	3,381,012	3,854,675	12,541,889	37,331,206
Land.....	46,426	46,337	316,455	361,938	362,881	408,275
Construction work in progress...	67,425,729	58,550,936	—	5,876	67,425,729	58,556,812
Totals, Operating Property and Equipment.....	165,474,905	231,919,588	13,625,709	15,876,029	179,100,614	247,795,617
Non-operating property and equipment.....	Dr. 14,403	Dr. 163,186	68,281	329,171	53,878	165,985
Grand Totals.....	165,460,502	231,756,402	13,693,990	16,205,200	179,154,492	247,961,602

Table 9 shows the number of civil air personnel and airport licences in force and the number of civil aircraft registered at the end of each of the years 1956 to 1960.

9.—Personnel and Airport Licences in Force and Aircraft Registered as at Dec. 31, 1956-60

Item	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Personnel Licences in Force—					
Pilot—					
Glider.....	233	287	304	376	444
Private.....	6,227	7,832	9,034	10,596	14,701
Commercial.....	2,194	2,411	2,548	2,338	2,319
Senior commercial.....	382	399	423	407	439
Airline transport.....	831	968	1,069	1,179	1,250
Totals, Pilot Licences.....	9,867	11,897	13,378	14,896	19,153
Air navigators.....	71	101	108	104	96
Air traffic controllers.....	355	565	631	722	763
Flight engineers.....	33	43	49	54	57
Aircraft maintenance engineers.....	1,706	1,916	2,043	1,863	1,953
Airport Licences in Force.....	519	550	452	456	483
Aircraft Registered—					
Commercial.....	1,700	1,826	1,879	1,880	1,863
Private.....	1,684	2,004	2,438	2,780	3,251
State.....	157	175	192	197	204
Totals, Aircraft Registered.....	3,541	4,005	4,509	4,857	5,318

PART VI.—OIL AND GAS PIPELINES

A special article covering the history and development of pipeline construction in Canada appears in the 1954 Year Book at pp. 861-869. Additional information has been carried in each succeeding edition and the following Section brings pipeline development up to the end of 1961.

Section 1.—Pipeline Developments*

Oil Pipelines.—Almost all of the important oil-producing countries rely on pipelines to transport oil from producing regions to markets or to ocean ports for trans-shipment. In some countries the distances are small; in others, such as Canada, the distances are great and pipelines constitute the only means of providing economic access to consuming areas. In most cases crude oil, rather than petroleum products, is transported long distances because refineries that produce petroleum products are generally market-oriented.

The gathering and trunkline systems that make up the Canadian pipeline network total about 9,500 miles of pipe. There are two major arterial systems, both originating in the chief oil-producing province of Alberta at Edmonton. One extends eastward as far as Toronto and the other southwestward to Vancouver and the State of Washington.

In 1961, about 1,000 miles of new oil pipeline were laid in Canada. This was the greatest mileage laid in one year since 1953, although no very large diameter lines were built.

An important new pipeline was completed in British Columbia, providing British Columbia's oil fields with pipeline access to the Vancouver market for the first time. This line, owned by Western Pacific Products & Crude Oil Pipelines, Ltd., consists of 504 miles of 12-inch pipe running from Taylor in northeastern British Columbia to Kamloops where it joins the Trans Mountain pipeline and is served partly by the previously built system of Trans-Prairie Pipelines, Ltd. This company had laid 169 miles of pipe in northeastern British Columbia by early 1961, providing pipeline connections between Taylor, where the Western Pacific line begins, and the Boundary Lake, Peejay, Milligan Creek, Beaton River, and Beaton River West fields. Also serving the Western Pacific pipeline is a new 66-mile, eight-inch line from the Blueberry field to Taylor, owned by British Columbia Oil Transmission Co., Ltd.

Peace River Oil Pipe Lines Co. Ltd. laid the longest oil pipeline in Alberta in 1961, to connect the Kaybob field with Edmonton by 161 miles of 12-inch pipe. The system has an eight-mile, eight-inch lateral from the Windfall field. Rimbey Pipe Line Company Ltd. installed a 64-mile eight-inch line from the large new Rimbey gas processing plant to Edmonton for delivering natural gas liquids. Rangeland Pipe Lines Company Limited built a 41-mile pipeline to transport natural gas liquids from the Waterton and Pincher Creek fields to the proposed new half-mile export line of the Aurora Pipe Line Company near Carway, Alta. In the United States, the Continental Oil Company was awaiting presidential approval at the end of 1961 to construct the Aurora pipeline across the Alberta-Montana boundary to connect with the United States Glacier pipeline system.

Interprovincial Pipeline.—The system of the Interprovincial Pipe Line Company is Canada's longest oil pipeline. The line extends from the Redwater field, 29 miles northeast of Edmonton, through the main terminal at Edmonton, to Port Credit near Toronto, a right-of-way distance of 1,928 miles. This includes the portion of the line passing through the United States which is operated by Interprovincial's wholly owned subsidiary, the Lakehead Pipe Line Company Incorporated. The Interprovincial system has various throughput capacities in different sections of the system to meet market requirements; the maximum is 434,000 bbl. per day near Gretna, Man.

The efforts made by industry and government to encourage greater use of Canadian crude oil in Ontario and the Great Lakes region of the United States proved highly beneficial to Interprovincial Pipeline in 1961. Deliveries of crude and natural gas liquids averaged 399,816 bbl. daily, 14.4 p.c. more than for the preceding year. Of the total deliveries, 55 p.c. were to Ontario, 23 p.c. to the United States, and 22 p.c. to the western provinces.

* Prepared in the Mineral Resources Division, Department of Mines and Technical Surveys, Ottawa, under the direction of Dr. Marc Boyer, Deputy Minister.

Trans Mountain Pipeline.—The system of Trans Mountain Oil Pipe Line Company extends from Edmonton to Vancouver, enabling West Coast refineries to use Alberta crude oil in place of foreign crude brought in by tanker. The line was completed in 1953 and consists of 718 miles of 24-inch pipe. Crude oil is piped to refineries at Vancouver and at Ferndale and Anacortes in the State of Washington. The extensions to the United States were built in 1954 and 1955. Although the pumping capacity of the line is 250,000 bbl. per day, the average daily throughput for the five-year period from the beginning of 1957 until the end of 1961 was 121,000 bbl., with annual average daily throughputs varying from a low of 81,000 bbl. per day in 1958 to a maximum of 156,500 bbl. per day in 1961. In addition to taking deliveries at Edmonton, Trans Mountain receives crude at Edson, Alta., from the Peace River pipeline which serves the Sturgeon Lake, Kaybob and Simonette areas, and at Kamloops from the recently completed pipeline of Western Pacific Products & Crude Oil Pipelines, Ltd., which delivers oil from fields in northeastern British Columbia.

Other Oil Pipelines.—Federated Pipe Lines Ltd. has a 123-mile main line which delivers crude oil from the Swan Hills group of fields to the Edmonton pipeline and refinery centre. Pembina Pipe Line Ltd. serves the Pembina and Willesden Green fields, also delivering their crude to Edmonton. Britam Oil Pipe Line Company Limited operates a pipeline that originates 140 miles south of Edmonton in the Drumheller area and gathers crude from several fields en route to Edmonton. The Imperial Pipe Line Company Limited has four systems that serve the fields in the Edmonton area including Leduc-Woodbend, Golden Spike and Redwater. Many fields between Edmonton and Calgary are served by a composite pipeline owned by three companies: Texaco Exploration Company, which owns the Edmonton-Rimby section; Rangeland Pipe Lines Company Limited, the Rimby-Sundre section; and Home Oil Company Limited-Cremona Pipeline Division, Sundre to Calgary. There are also numerous shorter or smaller-diameter oil pipelines in Alberta.

In Saskatchewan, Producers Pipelines Ltd. and its wholly owned subsidiary Westspur Pipe Line Company gather crude from most of the fields in the southeastern part of the province and deliver it to the Interprovincial pipeline at Cromer, Man. Trans-Prairie Pipelines, Ltd. has three systems which serve separate areas: the Weyburn field in southeastern Saskatchewan, connected to Westspur by one system; fields in southwestern Manitoba, linked to Interprovincial by another; and five fields in northeastern British Columbia served by the company's third system. The trunk and gathering system of South Saskatchewan Pipe Lines Company delivers oil from the group of fields in southwestern Saskatchewan to Moose Jaw, Regina and the Interprovincial pipeline at Regina.

Pipeline Tariffs.—The changing pattern of crude oil distribution to the West Coast in 1961 resulted in Trans Mountain Oil Pipe Line Company altering some tariff rates on Jan. 1, 1962. Because of the growing importance of the export market, the rate from Edmonton to Puget Sound refineries in the State of Washington was reduced two cents to equalize it with the Edmonton-Vancouver rate; the latter remained unchanged. Trans Mountain had to cut its tariff rate from Edmonton to Kamloops by five cents to equalize the delivered price of Alberta oil at Kamloops with that of British Columbia oil delivered there by the new Western Pacific pipeline. Interprovincial Pipe Line Company retained the tariff rates it had set late in 1960. Some examples of tariffs for the two major systems follow.

Route	Transmission Distance	Tariff as of Jan. 1, 1962
	miles	cts. per bbl.
Edmonton, Alta., to—		
Regina, Sask.....	438	20
Superior, Wis., U.S.A.....	1,098	37
Sarnia, Ont.....	1,743	50
Port Credit, Ont.....	1,899	54
Kamloops, B.C.....	510	33
Vancouver, B.C.....	718	40
Anacortes, Wash., U.S.A.....	740	40

Natural Gas Pipelines.—The year 1961 was the most important period for gas pipeline installation since the completion of the Trans-Canada pipeline in 1958, mainly because of the construction of the Alberta-to-California pipeline. The laying of the new pipeline was started in October 1960 and completed in November 1961. Natural gas started flowing into the United States in December. The cost of the complete system was more than \$300,000,000, nearly half being expended on the Canadian portion. The system consists of 1,243 miles of 36-inch line from Rocky Mountain House, Alta., to San Francisco, Cal., and 125 miles of 30-inch from Rocky Mountain House north to Whitecourt, Alta. The Alberta Gas Trunk Line Company Limited owns the 351-mile section in Alberta, plus 221 miles of new feeder laterals. The 107-mile section of the line which crosses south-eastern British Columbia from the Crowsnest Pass area to Kingsgate is owned by Alberta Natural Gas Company. The two companies exporting natural gas through this pipeline—Alberta and Southern Gas Co. Ltd. and Westcoast Transmission Company Limited—together are allowed to export a maximum of 610,800 Mcf. per day at the British Columbia-Idaho boundary. This amount is about one-half the ultimate throughput capacity of the pipeline. A 66-mile pipeline passes through the Waterton field and close to the Pincher Creek field to the Montana boundary near Cardston, Alta. This line will serve Canadian-Montana Pipe Line Company Limited, which has a licence to export a maximum of 36,000 Mcf. daily along this route. Numerous smaller pipeline systems were installed in Western Canada during 1961, such as the extensive gathering system completed to serve the large new gas plant of Petrogas Processing Ltd. near Calgary. In Saskatchewan, Saskatchewan Power Corporation was the most active builder, constructing an 88-mile line from Hatton to Success and adding smaller lines elsewhere.

Trans-Canada Pipe Lines Limited.—The Trans-Canada pipeline, completed in 1958, is the longest pipeline system in Canada, extending 2,145 miles from Burstall on the Alberta-Saskatchewan boundary to Montreal, Que. In addition, there are 145 miles of lateral lines and a 50-mile lateral completed in 1960 which delivers gas from the main line at Winnipeg to the United States near Emerson, Man. This lateral, Trans-Canada's only export line, had its first full year of operation in 1961, with 59,139,000 Mcf. exported during the year. Total sales by the company were 210,400,000 Mcf. in 1961, 65 p.c. above the 1960 volume. The system has 18 compressor stations with a total capacity of 196,510 hp. Trans-Canada Pipe Lines Limited operates no pipelines in Alberta but is supplied through the extensive network of The Alberta Gas Trunk Line Company.

Westcoast Transmission Company Limited.—The Westcoast Transmission pipeline, which was completed in October 1957, connects the producing fields of the Peace River district of British Columbia and adjacent areas in Alberta with consuming regions in central and southern British Columbia and with a United States pipeline on the Washington-British Columbia boundary. The completed pipeline consists of 930 miles of trunk and gathering lines, including 650 miles of 30-inch main line from Taylor in northeastern British Columbia to Huntington at the Washington-British Columbia boundary. The ultimate throughput capacity of the present main line, after installation of more compression equipment, will be 660,000 Mcf. per day. In 1961, peak daily deliveries were approximately 460,000 Mcf. Exports of natural gas to the United States through the Westcoast pipeline averaged 233,000 Mcf. daily for the year. In addition the company began moving gas from southern Alberta to Idaho, Washington and Oregon in December through the Alberta-California pipeline.

Other Gas Pipelines.—The Alberta Gas Trunk Line Company has the longest systems of gas pipelines in Alberta. The plains division has trunk lines running from the Home-glen-Rimbey and Nevis areas in the north and from Pincher Creek in the southwest to Princess, from whence a short line runs eastward to join the Trans-Canada pipeline at the Saskatchewan boundary. The newly completed foothills division, discussed earlier, serves the Alberta-California pipeline. In British Columbia, the British Columbia Electric Company Limited provides natural gas service to the Vancouver and lower mainland areas,

and Inland Natural Gas Co. Ltd. serves the southern interior region. Saskatchewan Power Corporation has an extensive pipeline system in Saskatchewan, which serves almost all centres of population in the province. In Manitoba, Greater Winnipeg Gas Company distributes natural gas in the Winnipeg area. Union Gas Company of Canada Limited serves southwestern Ontario in the Windsor, London, Sarnia and Chatham areas. Consumer's Gas Limited distributes gas in Metropolitan Toronto and in the Niagara Falls, Peterborough and Barrie regions as well as the Ottawa valley. The Montreal area is served by Quebec Natural Gas Limited, and Hull is served through a line from Ottawa by Société Gazifière de Hull. The gas pipeline companies in Eastern Canada receive nearly all their gas from the Trans-Canada pipeline, although a small amount of gas is imported directly into Ontario from the United States.

Section 2.—Pipeline Statistics

Oil Pipeline Statistics.*—There were 41 oil pipeline companies operating in Canada at the end of 1961. Pipeline deliveries shown in Table 1 were made to non-pipeline carriers, foreign pipelines, and terminals including refineries and distributing centres.

1.—Oil Delivered by Pipeline, 1957-61

Destination	1957	1958	1959	1960	1961
	bbl.	bbl.	bbl.	bbl.	bbl.
Yukon Territory ¹	—	—	37,157	320,360	304,902
British Columbia.....	22,300,264	20,597,276	22,555,326	23,284,402	24,471,989
U.S. Pacific Northwest (at Sumas, B.C.).....	27,329,940	8,968,639	13,271,836	18,125,927	33,237,614
West Coast offshore shipments.....	6,904,960	—	—	—	—
Alberta ²	13,570,320	16,150,606	22,741,019	23,068,781	23,682,391
Saskatchewan.....	17,691,698	16,289,075	18,599,119	18,235,423	17,220,163
Manitoba.....	9,952,757	10,628,835	10,977,184	11,275,498	11,791,683
U.S. Midwest (at Gretna, Man.).....	20,643,820	20,781,689	20,433,937	23,245,945	33,217,689
Ontario—crude oil.....	52,382,052	61,736,033	71,558,611	72,778,158	81,066,691
Ontario—refinery products.....	44,760,797	43,478,139	45,858,662	47,680,313	49,792,250
Quebec.....	81,428,930	78,547,073	84,371,790	79,170,088	78,761,205
Totals, Net Deliveries.....	296,965,538	277,177,365	310,344,641	317,181,895	353,546,577

¹ Products of refineries.

² Includes natural gasoline and other products.

Revenue and employee data shown in Table 2 are not complete; both revenue and employee figures have been omitted for some companies, since pipeline operation forms only a part of the activities of these establishments and the data are not separable.

* Statistics of oil pipelines are given in greater detail in the DBS monthly report *Oil Pipe Line Transport* (Catalogue No. 55-001). Additional information on the interprovincial movement of oil by pipeline will be found in Chapter XIX, Part I, Section 5.

2.—Operating Statistics of Oil Pipelines, 1958-61

Item		1958	1959	1960	1961
Barrels Handled (daily average)—					
Gathering.....	No.				588,356
Trunk.....	"	747,439 ^a	822,383 ^a	833,571 ^a	945,858
Barrel miles (trunk lines).....	'000,000	98,522	114,157	119,316	147,032
Average miles per barrel (trunk lines).....	No.	245	255	254	272
Average employees.....	1,653	1,559	1,549	1,499	
Salaries and wages.....	\$	9,321,821	9,351,295	9,638,912	9,579,373
Man-hours worked by wage-earners (including overtime).....	No.	855,225	853,241	837,982	
Operating revenues.....	\$	76,621,901	86,897,575	93,002,123	107,876,372

Gas Pipeline Transport Statistics.—The gas pipeline transport industry became a significant factor in the Canadian economy in 1957, with the completion of the first of several extensive pipelines constructed to transport natural gas from the field or processing plant to distribution outlets. The first detailed statistics for the industry cover the year 1959. Companies included are those that obtain the bulk of their revenue from the sale of gas to distribution companies for resale; those that derive most of their revenue from the sale of gas to final consumers are not included.

During 1961, Canadian transmission lines increased their net deliveries of natural gas by 37.7 p.c. to a total of 401,079,119 Mcf. from 291,164,211 Mcf. in 1960. Deliveries to distribution systems increased 27.2 p.c. and deliveries to foreign transmission lines 54.5 p.c. Deliveries averaged 1,098,847 Mcf. per day in 1961 compared with 795,531 Mcf. in 1960.

Receipts of natural gas were mainly from domestic sources—only 1.4 p.c. was imported. Imports were down slightly to 5,480,890 Mcf. from the 1960 total of 5,550,597 Mcf., while gas received from gathering systems increased to 393,652,677 Mcf. from 279,651,100 Mcf.

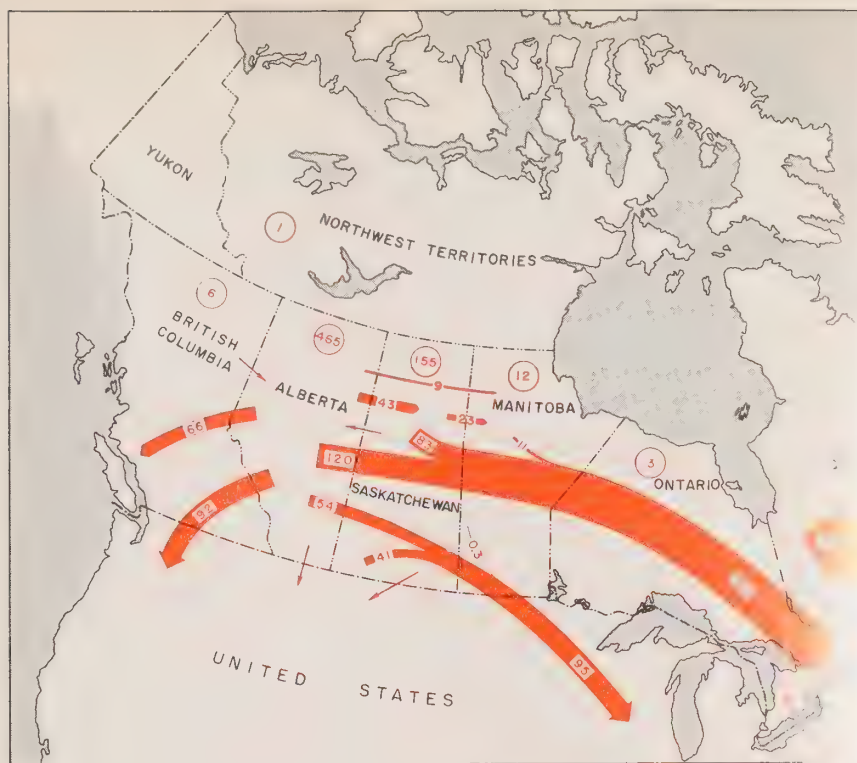
Operating revenues increased 41.2 p.c. to \$138,516,655 in 1961 from \$98,083,659 in 1960.

3.—Natural Gas Transmission, 1959-61

Item	1959	1960*	1961
	Mcf.	Mcf.	Mcf.
Natural Gas Received into System—			
From own gathering system.....	79,583,174	101,355,513	120,530,320
From other gathering systems.....	131,484,280	178,295,587	273,122,357
From foreign transmissions lines.....	11,631,172	5,550,597	5,480,890
Totals, Net Receipts.....	222,601,626	285,201,697	399,133,567
From Canadian transmission lines.....	80,518,000	148,887,225	258,557,280
From storage.....	10,180,728	12,646,150	20,298,994
From distribution systems.....	4,791,947	22,500,162	27,230,599
Totals, Gross Receipts.....	318,098,301	469,235,234	705,220,440
Natural Gas Delivered out of System—			
To distribution systems.....	136,001,965	178,573,842	227,062,133
To foreign transmission lines.....	83,175,601	112,483,781	173,840,858
To industrial consumers.....	99,971	105,378	174,851
To others.....	1,484	1,210	1,277
Totals, Net Deliveries.....	219,279,021	291,164,211	401,079,119
To Canadian transmission lines.....	80,518,000	148,887,225	258,503,017
To storage.....	10,812,260	16,850,422	24,002,897
Redelivered to distribution systems.....	3,190,280	6,274,357	6,948,891
totals, Gross Deliveries.....	313,799,561	463,176,215	690,533,924

4.—Operating Statistics of Gas Pipelines, 1959-61

Item	1959	1960*	1961
Daily average sendout.....	Mcf. 600,764	795,531	1,098,847
Gross receipts.....	" 318,098,301	469,235,234	705,220,440
Gross deliveries.....	" 313,799,561	463,176,215	401,079,119
Operating revenues.....	\$ 69,121,365	98,083,659	138,516,655
Pipeline mileage.....	miles 4,408.1	4,671.1	..
Average number of employees.....	No. 1,164	1,186	..
Salaries and wages.....	\$ 6,525,451	7,146,707	..
Average annual earnings per employee.....	\$ 5,606	6,026	..

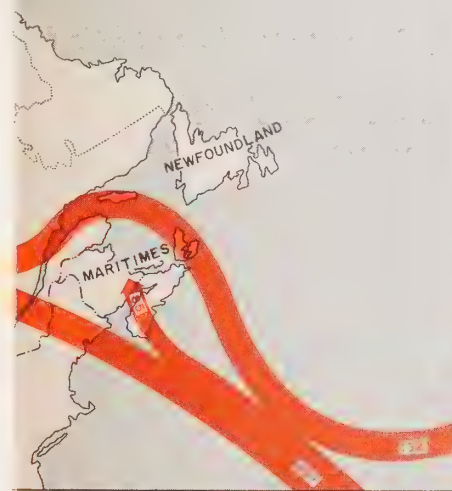


MOVEMENT OF CRUDE PETROLEUM* IN CANADA 1961

(THOUSANDS OF BARRELS PER DAY)

PRODUCTION.....(75)
INTERNATIONAL MOVEMENT.....150
INTERPROVINCIAL MOVEMENT.....150
MINOR MOVEMENT.....

* Includes natural gas liquids.



MOVEMENT OF NATURAL GAS IN CANADA 1961

(MILLIONS OF CUBIC FEET PER DAY)

PROVINCIAL CONSUMPTION INCLUDING DISTRIBUTOR'S STORAGE

(Preliminary)

BRITISH COLUMBIA.....	106
ALBERTA.....	616
SASKATCHEWAN.....	137
ONTARIO.....	384
MANITOBA.....	45
QUEBEC.....	65
NEW BRUNSWICK.....	0.3
NORTHWEST TERRITORIES.....	0.1
NET NEW PRODUCTION.....	(75)
INTERPROVINCIAL TRANSFER.....	150
INTERNATIONAL MOVEMENT.....	150
MINOR MOVEMENT.....	



MOVEMENT OF CRUDE PETROLEUM AND NATURAL GAS



New Alberta pipeline completed in 1961 connects Kaybob oil field with Edmonton by 161-mile, 12-inch pipe. A layer of coal tar enamel reinforced with fibreglass protects the pipeline when buried.



The gas pipeline network continues to expand in Western Canada. Construction in 1961 included the completion of an extensive gathering system to serve the new giant gas-processing plant at Rimbey, Alta.

CHAPTER XVIII.—COMMUNICATIONS

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Communications media in Canada have been shaped to meet the needs of the country. Great networks of telephone, telegraph and radio services, inextricably bound together, provide adequate and efficient service which, in this era of electronic advancement, is under continual technological change and development. The familiar challenges of the country—its size, its topography, its climate, its small population—which have reared their heads in other areas of development, have had to be faced as well in the field of communications. That these have been overcome is evidenced by the fact that today Canada possesses communication facilities and services second to none in the world.

Section 1.—Telecommunications*

During the past half-century, Canada has experienced tremendous economic expansion. Population growth and the advance to new industrial frontiers have been matched by an upward surge in national productivity and general standard of living. Continuing development of Canada is dependent on both individual pioneering and the co-operative efforts of many industries and the telecommunications industry is filling a vital role in this drama of growth.

Business and industry have expanded and ventured into isolated areas assisted and promoted by Canadian telecommunications industries which have anticipated the needs of the future with vast programs of development in virgin territories. Technological development has been particularly important to the extension of telecommunications in Canada. To meet the demands placed upon it, the industry has constantly introduced newer and better equipment, tools and methods of operation. In the growth of urban centres, the development of rural communities and the pioneering of new territory, Canadian telecommunications agencies have constantly sought to provide the highest quality of service for the greatest number of people. The major railways, the hundreds of co-operating telephone companies, the radio and television companies and federal communications organizations work together with a common purpose, building networks of telecommunications from coast to coast. They provide such familiar services as telephone, telegraph, teletype, radio and television, and many other related means of communication; in addition, mutual co-operation has allowed them to satisfy a variety of defence needs.

*Subsections 1 and 4 to 7 were revised in the Telecommunications and Electronics Branch of the Department of Transport, Ottawa. Textual data in Subsection 2 were prepared by The Bell Telephone Company of Canada, Montreal. Statistical material of Subsection 2 and Subsection 3 was revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

Subsection 1.—Government Control over Telecommunications Agencies

Telephone and telegraph companies incorporated under the Federal Government are subject to the jurisdiction of the Board of Transport Commissioners in the matter of rates and practices under the provisions of the Railway Act (see pp. 759-761); other companies are responsible to provincial regulatory bodies. International telegraph and telephone communications are handled subject to the International Telecommunication Convention and the Regulations thereunder and/or under regional agreements. Tolls charged to the public for radio communication service are subject to the provisions of the Regulations made under the Radio Act. Overseas cables landed in Canada are subject to the External Submarine Cable Regulations under the Telegraphs Act.

Radio communications in Canada, except for those matters covered by the Broadcasting Act, are regulated under the Radio Act and Regulations and also under the Canada Shipping Act and Ship Station Radio Regulations. In addition, radio communication matters are administered in accordance with the International Telecommunication Convention and Radio Regulations annexed thereto; the International Civil Aviation Convention; the International Convention for the Safety of Life at Sea; the Inter-American Telecommunication Convention and the Convention between Canada and the United States of America relating to the operation by citizens of either country of certain radio equipment or stations in the other country; and also in accordance with such regional agreements as the agreement between Canada and the United States for the promotion of safety on the Great Lakes by means of radio, the Inter-American Radio Agreement and the North American Regional Broadcasting Agreement (see also pp. 847-848).

National radio broadcasting in Canada entered its present phase in 1936 when, with the passage of the Canadian Broadcasting Act, the Canadian Broadcasting Corporation replaced the Canadian Radio Broadcasting Commission. The Act gave the Corporation wide powers in the operation of the system and gave to the Minister of Transport the technical control of all broadcasting stations.

During 1958 the Government established a Board of Broadcast Governors and the Canadian Broadcasting Corporation Board of Governors was abolished. The Board of Broadcast Governors regulates the establishment and operation of networks of sound and television broadcasting stations, the activities of public and private broadcasting stations and the relationship between them, in the interest of providing a national broadcasting service of high standard, basically Canadian in content and character. While the Minister of Transport is the licensing authority under the Radio Act, the Broadcasting Act requires that applications for broadcasting station licences or for any change in an existing broadcasting station be referred to the Board of Broadcast Governors for its recommendation before being dealt with by the Department.

Subsection 2.—Telephones

Alexander Graham Bell first transmitted human speech through electrically energized equipment in March 1876, and in August of the same year a one-way call from Brantford to Paris in Ontario marked the first successful long-distance test of the new invention. Soon after the instrument was perfected, telephone exchanges sprang up in many Canadian communities, sometimes two competing companies in one place. As a result, in April 1880 The Bell Telephone Company of Canada was established by Act of Parliament and authorized as the official agent for telephone service in thirty-two cities and towns across the country. However, it came to be recognized that, in the existing state of the industry, one

company could scarcely develop and organize service over so wide a territory and separate companies were set up in British Columbia. The Bell Telephone withdrew from the Maritime Provinces in the 1880's and installations in the Prairie Provinces were sold to the respective provincial governments in 1908-09. The seven major telephone systems that developed across Canada worked together to establish long-distance service on a national basis and in 1931 they founded the Trans-Canada Telephone System, which now has eight full members including both shareholder-owned companies and provincial government systems. They are as follows:—

The Avalon Telephone Company Limited (joined in 1957)
Maritime Telegraph and Telephone Company Limited
The New Brunswick Telephone Company Limited
The Bell Telephone Company of Canada (serving Ontario and Quebec)
Manitoba Telephone System
Saskatchewan Government Telephones
Alberta Government Telephones
British Columbia Telephone Company.

These eight systems, together with the Island Telephone Company (P.E.I.), Québec-Téléphone (lower St. Lawrence), Ontario Northland Communications and the Okanagan Telephone Company, comprise The Telephone Association of Canada. This organization was established to ensure general co-operation in telephone matters.

As already mentioned, the steadily rising demand for local and long-distance service has called not only for general expansion of Canadian telephone systems but for the constant introduction of modern facilities and services. A number of Canadian companies have developed what is called "Extended Area Service" in many of the communities they serve. This plan eliminates long-distance charges between the larger centres and their suburbs, or between two or more places with close community of interest.

As part of the transmission facilities needed to carry the great volume of long-distance traffic as well as network television programs, the members of the Trans-Canada Telephone System collaborated to build a microwave radio relay network spanning Canada from coast to coast. The longest such network in the world, it was placed in operation on July 1, 1958. It is maintained jointly, each System member being responsible for the section falling in its operating territory. The Trans-Canada microwave system carries simultaneously many hundreds of long-distance telephone conversations, large volumes of data, and television programs for the CBC and CTV television networks. Extensions to the original network have been made, bringing long-distance telephone service and television programs to many of the more remote areas of Canada.

For several years operators have been dialing many long-distance calls direct to the wanted telephone. The modern switching system that makes this possible also permits customer dialing of long-distance calls. Known as Direct Distance Dialing, customer dialing of long-distance calls has been in effect for some time in several Canadian communities and more centres are being added to the list each year. A long-range international plan, developed by the telephone companies of Canada and the United States, eventually will allow practically every telephone-user in North America to dial direct to almost any other telephone on the Continent. Direct dialing, an added convenience for telephone customers, will allow Canadian telephone companies to handle economically the ever-growing volume of long-distance calls.

The volume of long-distance calls is being greatly augmented by machine-to-machine communications over the regular telephone network. Much of the growth of machine-to-machine communication has been made possible by the introduction of Data-Phone data sets. These data sets convert electrical pulses from business machines into tone-signals acceptable to telephone circuits; a Data-Phone data set at the receiving business machine re-converts the tone-signals into machine language. It is expected that, within the next few years, the volume of machine-to-machine communications will equal that of regular voice calls. Several new optional services introduced recently provide even greater flexibility for machine-to-machine and voice calling over long distances. One of these extends a customer's flat-rate calling to telephones within seven progressively wider zones, the largest of which includes the whole of Canada. The charge for this service is based upon the zone the customer chooses and on whether he elects to use the service on a full-time or a part-time basis. A new private line inter-city service is available to organizations which transmit large volumes of information requiring an exceptionally broad band of frequencies, such as data from advanced computers and high-speed facsimile equipment. Alternatively, it may be used to carry simultaneously many smaller loads of information such as voice calls and teletype, which require relatively narrow bands of frequencies.

All-Number calling—a telephone numbering plan which uses seven figures instead of two letters and five figures—is being introduced gradually to eliminate the potential problem of a shortage of usable exchange prefixes. On a continent-wide basis it will almost double the total of such exchange prefixes.

The northward extension of industry in Canada has, of course, required the northward expansion of telephone communications. The British Columbia Telephone Company operates a radio chain from Vancouver up the coast to Kitimat. Uranium City in northern Saskatchewan, located in a vast area of muskeg and swamp, is provided with communications through a radio network out of Prince Albert, Sask. In Manitoba, the radiotelephone service reaches out to a large number of isolated settlements and bush camps and provides communications for aircraft and for boats plying Lake Winnipeg. Goose Bay in Labrador and the Schefferville area of the Quebec-Labrador boundary are now in immediate telephone contact with the remainder of the world through a radio relay network operated out of Quebec City through Sept Îles. A branch of this system extends long-distance service to the new mining settlement of Gagnon, Que. In 1959, Bell Telephone opened its farthest-north exchange at Frobisher Bay on Baffin Island.

The summer of 1961 marked the further expansion of northern communications with the inauguration of radio-telephone service for that great northern area between the Quebec shore of Hudson Bay, the Atlantic coast of Labrador and the Northwest Territories. Radio facilities linked directly with the long-distance system permit communication from within this vast and sparsely populated area to virtually anywhere within the civilized world. Focal point of the radio network is a base station located near Alma, Que. It serves all settlements desiring service wherever they may be located throughout the thousands of square miles that comprise this immense region, as well as aircraft operating in the area. As additional requirements arise, either in established or new communities, radio-telephone service will be provided.

Numerous flexible services are provided by Canadian telephone companies for business and industry. Special conference circuits can be quickly arranged, enabling widely scattered business interests to discuss their affairs without the inconvenience and expense of travel. Telephoto and facsimile services provide photographic copy direct from the originator. Radio installations link the traveller with the regular telephone network, providing mobile service for such users as highway departments, trucking and construction firms, fire and ambulance services and police departments. Pipeline and power companies also use the telephone network to carry telemetering information between remote control units and central offices.

There is a significant demand for efficient service combined with attractive telephone instruments. Business customers have been quick to accept the products of telephone research such as the Call Director, a telephone offering a flexible combination of dial telephone and push-button or dial intercommunication. Another new service called Centrex, designed for large customers, was introduced in 1961. This is a centralized system for private branch exchange service which permits outside calls to be dialed straight through to an extension without being relayed at the switchboard.

Telephone Statistics.—There were 2,558 telephone systems operating in Canada in 1960 compared with 2,605 in 1959. The number of co-operative systems in rural districts decreased from 2,195 to 2,180 and the number of shareholder-owned companies decreased from 304 to 283. The largest of the stock companies, The Bell Telephone Company of Canada operating throughout the greater part of Ontario and Quebec, served 63 p.c. of all the telephones in Canada as compared with 61 p.c. in 1959. The British Columbia Telephone Company, also shareholder-owned, served 9 p.c. of the total in both years.

The number of telephones in use in Canada has risen by 84 p.c. during the ten-year period 1951-60. At Dec. 31, 1960, there were 5,728,167 telephones in service compared with 5,439,023 in 1959 and 3,113,766 in 1951. The number of residential telephones and the number of business telephones increased by 6 p.c. and 7 p.c., respectively, during 1960. Pay telephones were also up 3 p.c. but rural telephones decreased by 2 p.c. By the end of the year, 88 p.c. of all telephones in Canada were dial-operated as compared with 85 p.c. at the end of 1959.

1.—Mileages of Pole Line and Wire and Number of Telephones in Use, 1951-60

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Systems	Pole-Line Mileage ¹	Mileage of Wire	Telephones in Use					
				Business	Residential	Rural ²	Public Pay	Total	Per 100 Population
	No.	miles	miles	No.	No.	No.	No.	No.	No.
1951.....	2,904	249,638	10,330,751	864,015	1,735,355	467,171	47,225	3,113,766	22.2
1952.....	2,888	253,420	11,265,903	920,269	1,888,889	492,753	50,455	3,352,366	23.2
1953.....	2,793	257,059	12,307,070	988,489	2,053,944	513,061	50,913	3,606,407	24.4
1954.....	2,788	257,444	13,357,289	1,053,852	2,213,154	538,660	54,603	3,860,269	25.4
1955.....	2,739	259,784	14,758,160	1,132,436	2,408,959	552,838	57,445	4,151,678	26.6
1956.....	2,661	269,303	16,410,897	1,229,150	2,625,787	584,484	59,904	4,499,325	28.0
1957.....	2,637	274,334	18,161,444	1,304,514	2,852,875	609,343	60,403	4,827,135	29.1
1958.....	2,619	280,884	20,250,410	1,379,205	3,050,812	625,453	62,823	5,118,293	30.0
1959.....	2,605	267,737	22,791,129	1,460,142	3,281,147	632,651	65,083	5,439,023	31.2
1960.....	2,558	274,855	25,333,802	1,565,749	3,475,344	620,219	66,855	5,728,167	32.2

¹ Includes underground conduits and buried cable.

² Includes telephones on rural exchange lines and urban exchange lines having more than four parties.

The density of telephones in the different provinces is influenced by the urbanization of the population and the number of telephones used for business purposes.

2.—Telephones in Use, by Province, 1960

Province or Territory	On Individual Lines		On 2- and 4-Party Lines		On Rural Lines		Public Pay Telephones
	Business	Residence	Business	Residence	Business	Residence	
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	5,735	12,639	507	21,354	—	3,177	573
Prince Edward Island..	1,923	4,337	89	3,135	327	5,166	123
Nova Scotia.....	14,665	68,016	493	22,676	1,197	26,278	2,428
New Brunswick.....	10,644	32,527	890	32,707	1,213	19,605	1,599
Quebec.....	132,486	515,433	7,200	308,318	14,148	111,646	23,946
Ontario.....	208,359	690,224	16,542 ¹	532,858 ¹	10,684	195,117	27,295
Manitoba.....	25,268	85,122	445	77,524	5,349	29,454	2,293
Saskatchewan.....	23,640	116,409	64	1,436	3,572	57,472	1,733
Alberta.....	49,435	213,327	3	57	1,021	30,628	2,326
British Columbia.....	58,306	44,675	410	229,917	3,792	100,228	4,520
Yukon Territory.....	27	5	47	92	2	50	—
Northwest Territories..	209	125	85	303	6	87	19
Canada.....	530,697	1,782,839	26,775	1,230,377	41,311	578,908	66,855
	Private Branch Exchange		Extensions		Mobile	Total	Telephones per 100 Population
	Business	Residence	Business	Residence			
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	6,171	5	4,076	3,767	2	58,006	12.6
Prince Edward Island..	1,186	—	1,260	1,002	25	18,673	18.0
Nova Scotia.....	15,247	1	9,059	13,457	454	173,971	24.1
New Brunswick.....	11,596	—	8,638	8,852	286	128,557	21.4
Quebec.....	177,452	60	102,420	127,348	165	1,520,622	29.8
Ontario.....	286,032	198	139,146	217,953	467	2,324,875	38.2
Manitoba.....	27,791	—	14,897	14,479	173	282,800	31.5
Saskatchewan.....	17,927	—	9,698	9,259	225	241,435	26.5
Alberta.....	50,460	8	18,524	26,493	562	392,844	30.6
British Columbia.....	62,553	—	40,916	39,206	515	585,038	36.4
Yukon Territory.....	—	—	6	1	—	230	1.6
Northwest Territories..	220	—	123	39	—	1,216	5.5
Canada.....	656,635	272	348,763	461,856	2,879	5,728,167	32.2

¹ Ontario 4-party telephones included under Rural Lines.

The major telephone systems record completed calls on representative days throughout the year and on this basis estimate the number of local conversations which, added to the actual count of long-distance calls, gives their total volume of business. Estimates are included for the smaller systems. The number of completed calls on all systems in 1960 was estimated at 9,579,861,000, or an average of 1,672 calls per telephone and 537 calls per person. Despite the increase in extended area service which eliminates toll charges between adjacent communities, long-distance calls continue to increase in number.

3.—Local and Long-Distance Calls and Average Calls per Capita and per Telephone, 1951-60

NOTE.—Figures from 1928 will be found in the corresponding table of previous Year Books beginning with the 1939 edition.

Year	Local Calls	Long-Distance Calls	Total Calls	Total Calls per Capita	Average Calls per Telephone		
					Local	Long-Distance	Total
	No.	No.	No.	No.	No.	No.	No.
1951.....	5,146,238,000	127,406,000	5,273,644,000	376	1,653	40.9	1,694
1952.....	5,482,973,000	126,721,000	5,609,694,000	389	1,635	37.8	1,673
1953.....	5,952,756,000	131,899,000	6,084,655,000	412	1,650	36.6	1,687
1954.....	6,209,771,000	137,761,000	6,347,532,000	418	1,608	35.7	1,644
1955.....	6,808,389,000	153,087,000	6,961,476,000	446	1,640	36.8	1,677
1956.....	7,593,525,000	171,280,000	7,764,805,000	486	1,688	38.0	1,726
1957.....	8,077,101,000	178,608,000	8,255,709,000	498	1,673	37.0	1,710
1958.....	8,513,455,000	194,186,000	8,707,641,000	511	1,663	37.9	1,701
1959.....	9,044,825,000	205,395,000	9,250,220,000	520	1,663	37.9	1,701
1960.....	9,364,586,000	215,275,000	9,579,861,000	537	1,635	37.6	1,672

The steady increases in capitalization, income and expenditure of telephone companies together with the figures of number of employees and salaries and wages paid are shown for the years 1951-60 in Table 4. Provincial figures for 1960 are given in Table 5.

4.—Financial Statistics of Telephone Systems, 1951-60

NOTE.—Figures from 1911 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Capital Stock	Funded Debt	Cost of Property and Equipment	Income	Expenditure	Net Income	Em- ployees ¹	Salaries and Wages ²
	£	£	£	£	£	£	No.	£
1951.....	286,003,119	307,623,351	909,581,399	240,762,657	213,824,471	26,938,186	47,387	117,677,652
1952.....	335,575,292	378,628,224	1,027,527,807	279,001,814	244,506,402	34,495,412	48,207	131,370,832
1953.....	398,198,697	450,511,233	1,152,309,749	310,833,599	269,817,828	41,015,771	50,540	145,109,934
1954.....	418,287,016	498,231,715	1,301,545,688	340,623,170	296,384,292	44,238,878	51,929	159,329,238
1955.....	467,026,669	521,336,006	1,470,679,433	376,716,651	328,880,674	47,835,977	55,673	173,922,973
1956.....	549,266,657	583,795,407	1,672,363,570	422,370,206	366,117,634	56,252,572	60,121	193,992,142
1957.....	627,051,991	683,386,827	1,941,591,700	467,701,983	412,158,348	55,543,635	64,074	219,693,002
1958.....	639,824,492	845,613,559	2,202,747,303	507,689,602	451,672,799	56,016,803	61,400	234,298,163
1959.....	730,874,613	916,791,207	2,444,576,788	582,262,550	509,727,426	72,535,124	58,826	240,691,244
1960.....	758,291,439	1,068,399,476	2,692,484,052	627,982,847	549,042,848	78,939,999	57,670	247,128,467

¹ Full-time only.

² Full-time and part-time.

5.—Financial Statistics of Telephone Systems, by Province, 1960

Province or Territory	Capital Liability	Cost of Property and Equipment	Income	Expenditure	Em- ployees ¹	Salaries and Wages ²
	\$	\$	\$	\$	No.	\$
Newfoundland.....	15,149,545	19,711,925	3,356,650	2,511,709	549	1,439,432
Prince Edward Island....	3,606,323	6,120,164	1,425,781	1,224,607	162	431,392
Nova Scotia.....	50,399,010	72,714,334	16,544,306	14,176,675	1,852	6,096,285
New Brunswick.....	45,132,616	68,568,379	14,955,450	12,806,749	1,528	5,227,266
Quebec ³	1,114,286,634	719,293,677	425,806,694	369,755,770	16,509	74,411,755
Ontario ³	22,668,200	1,070,590,798	12,852,076	10,760,733	20,839	93,462,808
Manitoba.....	91,852,568	135,990,613	23,320,426	22,025,433	3,639	12,960,823
Saskatchewan.....	95,734,656	124,960,099	25,770,880	23,839,626	2,011 ⁴	8,284,520 ⁴
Alberta.....	136,823,264	180,018,258	37,880,834	33,307,071	4,387	17,477,182
British Columbia.....	250,907,899	293,448,981	65,977,759	57,946,687	6,181	27,285,231
Yukon Territory.....	65,000	33,902	23,724	21,394	3	16,966
Northwest Territories....	65,200	132,919	68,267	65,494	10	34,807
Totals.....	1,826,690,915	2,692,484,032	627,982,847	549,042,848	57,670	247,128,467

¹ Full-time employees only.² Full-time and part-time.³ Certain statistics of The Bell Telephone

Company of Canada for both Quebec and Ontario are included under Quebec.

⁴ Excludes wages and employees for rural systems.

Subsection 3.—Telegraphs

At the end of 1961 nine telegraph and cable companies were in operation in Canada. These systems, composed of lines owned by the chartered railway and telegraph companies, including the Canadian Overseas Telecommunication Corporation (see p. 845), increased their property and equipment to \$299,568,298, 12 p.c. above that reported in 1960. A new record was set for operating revenues at \$64,053,626, up 9.4 p.c. from the previous high of 1960, and net income decreased to \$10,696,819, 10 p.c. below the 1960 figure. Fewer telegrams were sent, the lowest number since 1942, but cablegrams continued to increase, numbering 2,809,691 in 1961.

6.—Summary Statistics of Canadian Telegraphs, 1952-61

NOTE.—Figures from 1920 are given in the corresponding table of previous Year Books beginning with the 1938 edition.

Year	Operating Revenues	Operating Expenses	Net Operating Revenue	Pole-Line Mileage	Wire Mileage	Em- ployees ¹	Messages, Land ²	Cablegrams and Marconi-grams ³	Money Transferred
	\$	\$	\$	miles	miles	No.	No.	No.	\$
1952.....	33,093,843	31,617,156	1,476,687	52,699	437,581	11,272	21,614,196	1,934,433	19,514,490
1953.....	36,920,384	33,953,196	2,967,188	52,727	450,835	11,618	21,222,706	2,042,921	21,553,387
1954.....	38,203,590	33,203,942	4,999,648	46,284	434,178	10,629	19,908,354	2,105,513	21,550,372
1955.....	39,320,960	32,501,844	6,819,116	48,087	438,692	10,852	20,067,424	2,238,433	23,264,851
1956.....	40,720,213	33,688,888	7,031,325	48,052	412,891	10,833	20,381,641	2,429,893	24,295,308
1957.....	44,795,778	39,271,893	5,524,885	48,379	451,069	11,159	19,163,723	2,580,745	25,586,057
1958.....	47,633,991	39,908,538	7,725,453	47,495	464,661	10,587	17,296,786	2,499,871	24,434,887
1959.....	52,962,913	43,511,666	9,451,247	47,470	483,875	10,536	16,390,997	2,602,974	25,589,067
1960.....	58,546,167	45,538,053	13,008,104	48,159	510,640	10,279	15,546,292	2,663,598	25,134,534
1961.....	64,053,626	51,735,006	12,318,620	48,511	524,720	9,997	15,138,706	2,809,691	25,041,156

¹ Excludes commission operators.² Includes messages to and from vessels on the Great Lakes and the St. Lawrence River and messages to and from stations.³ Excludes relayed messages.

Subsection 4.—Overseas Telecommunication Services

The Canadian Overseas Telecommunication Corporation was established in 1950 to maintain and operate external telecommunication services for the conduct of public communications by cable, radiotelegraph and radiotelephone and any other means of telecommunication between Canada and overseas points; to make use of all developments in cable and radio transmission and reception for external telecommunication services; and to conduct investigation and research with the object of improving and co-ordinating such telecommunication services with the telecommunication services of other parts of the Commonwealth.

In 1952 the Corporation commenced an expansion program of overseas services designed to meet future requirements and the following services have so far been established: direct telegraph, telephone and telex communications between Canada and Argentina, Australia, Barbados, Bermuda, Britain, Denmark, Finland, France, Germany, Italy, Jamaica, Japan, Netherlands, New Zealand, Norway, Sweden and Switzerland.

In 1956 the first transatlantic telephone cable, a joint project with the British Post Office, the American Telephone and Telegraph Company and the Corporation, was brought into service. Apart from normal use of the system for public telephone and telegraph message traffic, capacity is available for private leased circuits. The Corporation introduced International Telex service to Canada in 1956 and service with 63 countries is available. The first transatlantic slow-scan television pictures were transmitted between Canada and Britain in 1959. In addition, 35 telephone circuits have been provided by cable and microwave for use between the mainland and Newfoundland.

The Canada-Britain 80-circuit telephone cable (CANTAT) was opened for service on Dec. 19, 1961. The Corporation will provide, jointly with the Great Northern Telegraph Company, a Canada-Greenland-Iceland 24-circuit telephone cable—primarily to meet the North Atlantic communication needs of international civil aviation—scheduled to go into operation in 1962. Its connecting counterpart between Iceland and Scotland (SCOTICE) was brought into service on Jan. 22, 1962. A four-party project (Canada, Britain, Australia and New Zealand) will provide a Canada-New Zealand-Australia 80-circuit telephone cable. This section of a Commonwealth round-the-world telephone cable system is scheduled for completion early in 1964. The Tasman section between Australia and New Zealand will be opened in July 1962. Arrangements were completed for the right of use of a number of circuits for Canadian purposes in a telephone cable system connecting Bermuda and the United States and these were brought into operation on Jan. 8, 1962.

In addition to the overseas services operated by the Canadian Overseas Telecommunication Corporation, two cable companies operate submarine cables landing in Canada—the Commercial Cable Company and the Western Union Telegraph Company. These companies operate to stations in Britain, Ireland, the United States, the Azores and St. Pierre and Miquelon Islands.

A list of cables landed in Canada is given in Table 7.

7.—External Cables Landed in Canada, 1961

Company and Station	Cables	Nautical Miles
	No.	No.
Canadian Overseas Telecommunication Corporation (COTC)—		
Halifax, N.S. via Azores to Porthcurno, England.....	1	3,078
Port Alberni, B.C. to Auckland, New Zealand.....	1	6,748
Port Alberni, B.C. to Sydney, Australia.....	1	7,830
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland ¹	1	2,280
Hampden Nfld. to Oban, Scotland (CANTAT).....	1	2,010

¹For footnotes, see end of table, p. 846.

7.—External Cables Landed in Canada, 1961—concluded

Company and Station	Cables	Nautical Miles
	No.	No.
Commercial Cable Company (CCC)—		
St. John's, Nfld. to Waterville, Ireland.....	4 ¹	7,086
St. John's, Nfld. to New York, N.Y., U.S.A.....	2	2,587
Canso, N.S. via Azores to Ireland.....	2	3,426
Canso, N.S. to New York, N.Y., U.S.A.....	2	2,890
Canso, N.S. to St. John's, Nfld.....	2	913
Western Union Telegraph Company (WU)—		
Bay Roberts, Nfld. to Penzance, England.....	4	8,479
Bay Roberts, Nfld. to Hammil, N.Y., U.S.A.....	2	2,778
Bay Roberts, Nfld. to Azores.....	1	1,343
Heart's Content, Nfld. to Valencia, Ireland.....	4 ²	7,541
Placentia, Nfld. to St. Pierre and Miquelon Islands.....	2	250
North Sydney, N.S. to St. Pierre and Miquelon Islands.....	3	594
North Sydney, N.S. via Canso to Duxbury, Mass., U.S.A.....	1	695
North Sydney, N.S. to Island Cove, Nfld.....	2	635
North Sydney, N.S. to Colinet, Nfld.....	1	323
Island Cove, Nfld. to St. Pierre and Miquelon Islands.....	1	130
Eastern Telephone and Telegraph Company (ET&T)—		
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland ¹	2	2,280
Sydney Mines, N.S. via Clarenville, Nfld. to Penmarch, France.....	2	2,400
New Brunswick Telephone Company Limited (NBTEL)—		
Campobello Island, N.B. to Lubec, Me., U.S.A.....	1	0.3

¹ Twin cable from Clarenville, Nfld. to Oban, Scotland and single cable from Clarenville, Nfld. via Terranceville, Nfld. to Sydney Mines, N.S. ² Licensed for operation by two carriers—COTC and ET&T. ³ One cable unserviceable.

Subsection 5.—Meteorological Communications

Weather stations operated by the Meteorological Branch of the Department of Transport throughout Canada are linked coast-to-coast by means of teletype and in the remote northern areas by radio or radioteletype. The landline teletype circuits are leased from commercial companies. The radio circuits are operated chiefly by the Telecommunications and Electronics Branch of the federal Department of Transport.

Weather stations on the teletype network transmit their reports directly; other stations report via commercial or radio facilities to the nearest station on the teletype line for subsequent transmission on the meteorological circuit. The reports are collected on a regional basis and then relayed to other parts of the country as required. There are two coast-to-coast teletype systems transmitting weather information, with main relay points at Vancouver, Edmonton, Winnipeg, Toronto, Montreal, Halifax, Gander and Goose Bay. These main meteorological communications centres not only handle the distribution of weather information within Canada including the Arctic, but also effect international exchange with the United States and Europe and, through them, with many other countries. For the latter purpose, the Canadian Meteorological Branch and the British Meteorological Office share the cost of a leased duplex circuit in the transatlantic cable. Altogether, the Meteorological Branch uses 54,000 miles of teletype circuits connecting 351 teletype offices.

In addition, a facsimile network connects forecast offices including radio facsimile transmission to Arctic stations and ships at sea. Weather charts originating at the Central Analysis Office in Montreal receive national distribution over this network. Regional transmissions of additional charts are distributed on a local basis. Altogether, the Meteorological Branch utilizes 13,100 miles of facsimile circuits, serving 66 offices.

Subsection 6.—Federal Government Civil Telecommunications and Electronics Services

Radio in Canada traces its origin to the year 1900 when wireless telegraphy was introduced and placed under the jurisdiction of the Department of Public Works. The first commercial radio circuit was established between Chateau Bay, Que., and Belle Isle in the Strait of Belle Isle in 1901, replacing an underwater cable which was difficult to maintain. In the first days of radio there did not appear to be any necessity for special legislative control, but the growth of this new medium of communication was very rapid and the Wireless Telegraph Act of 1905 became the first legislation in Canada controlling radio communication.

Radio regulation and radio coast station services are now under the jurisdiction of the Telecommunications and Electronics Branch of the Department of Transport. The functions and responsibilities of the Branch may be summarized as follows: (1) administration of the Radio Act and Regulations and the Radio Provisions of the Canada Shipping Act and Ship Station Radio Regulations; (2) research into and development of new and improved communication and electronic equipment and systems needed for aeronautical, marine, meteorological and other services; (3) construction, maintenance and operation of radio aids to marine and air navigation and of radio communication stations including procurement of the necessary equipment; (4) development and administration of government policy with respect to the Canadian Overseas Telecommunication Corporation and Canada's participation on the Commonwealth Telecommunications Board; (5) administration of the leasing of landline services required for all services of the Department; (6) planning of emergency measures and administration of the Emergency National Telecommunication Organization (ENTO); (7) administration of the Telegraphs Act and the Regulations thereunder covering the licensing of overseas submarine cables; (8) participation in the work of the International Telecommunication Union and its subsidiary organs; and (9) participation in the communication and electronic activities of the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) and the International Marine Consultative Committee (IMCC).

Licensing and Regulation of Radio Stations.—The Radio Act requires that all radio stations be licensed by the Department of Transport including television, radar and any form of Hertzian wave transmission. Licensing, which provides basic control over the right to establish a radio station, involves the assignment of specific frequencies to each station with a view to avoiding direct interference between stations. The setting of standards for the equipment, installation and operation of a station provides control for efficient use of the radio spectrum. Control over station operation is exercised through examination and certification of operating personnel.

The standard broadcast band is crowded with stations that are capable of interfering with one another over the entire North American region. Engineering briefs covering the selection or change of frequency, amount of power and design of the directional antennae system must be approved by the Department of Transport and notification sent to the signatory countries of the North American Regional Broadcasting Agreement before a new broadcasting station can be licensed or before modification can be made in an existing station. After the establishment or change is completed, proof of performance must be submitted to establish that the actual installation is in accordance with the approved plan.

Ten monitoring stations are maintained at suitable points across Canada to make frequency measurements and record transmissions to ensure that radio stations are complying with the procedures set forth for their particular service, to detect non-licensed stations, to assist in the investigation of inter-station interference and to make studies of spectrum utilization.

Under the Safety of Life at Sea Convention and the Canada Shipping Act, most passenger ships and larger cargo ships must be fitted with radiotelegraph or radiotelephone equipment, primarily for distress use. Approval is given for each make and model of equipment that comes up to the required standard and, in addition, the ship station as a whole is inspected after the licence is issued and periodically thereafter. Foreign ships are subject to inspection before sailing from Canadian ports to ensure that they conform to the requirements of the Safety of Life at Sea Convention. Also, certain passenger, cargo and other ships plying the Great Lakes are inspected to ensure compliance with the requirements of the agreement between Canada and the United States for the promotion of safety on the Great Lakes by means of radio.

Standards have been developed for the installation of aircraft radio stations specifying the techniques and materials that may be used, to ensure that such stations will satisfactorily perform the function for which they are intended. Inspections of radio stations aboard civil aircraft of all operational categories are carried out at prescribed periods. In-flight inspections of the radio communications and navigational aspects of proposed new air carrier operations, encompassing both land and oceanic routes, are also made as required.

Marine and aeronautical radio operator standards and related regulations are covered by international agreement. The International Telecommunication Convention prescribes the qualifications for radio operators on mobile stations and the Radio Act provides that all operators, both commercial and amateur, must pass examinations to prove their ability to operate the respective classes of stations on which they are engaged. Competent operators are required on all classes of stations to ensure that the requirements prescribed under international agreement are adhered to closely; they are particularly essential on ship and aircraft stations in the interest of safety of life.

Investigation and Suppression of Inductive Interference.—The Radio Act provides penalties for selling or using apparatus liable to cause interference to radio reception. Standards are developed and type approvals issued for certain classes of such equipment. The Telecommunications and Electronics Branch of the Department of Transport provides also a country-wide interference service using special investigation equipment for the purpose of tracing sources of interference and recommending cures for interference to broadcast, television and other radio reception.

Cars equipped for measuring and locating sources of interference operate from offices located in 30 cities throughout Canada; 20,491 cases were dealt with during the year 1960. Sources include power lines, auto ignitions, heavy electrical equipment, domestic appliances, electro-medical apparatus, industrial radio frequency generators and TV receivers. Negotiation with public utilities and industrial firms is required to decide corrective measures.

Regulations specifying the limits to be met by particular types of apparatus are contained in the Radio Noise Limits Order. Certain low-powered radio transmitting and receiving equipment is exempt from the operation of the Radio Act, e.g., garage door radio controls for a number of models have been exempted and consequently may be operated without the radio station licence otherwise required.

Radio Aids to Marine and Aeronautical Navigation.—Services of the Telecommunications and Electronics Branch of the Department of Transport in aid of marine and aeronautical navigation are described in the following paragraphs. Details may be obtained on request from the Department of Transport, Ottawa.

Marine Navigation.—Radio aids to marine navigation are provided for about 4,000 radio-equipped Canadian vessels and almost as many foreign ships using Canadian waters. A safety and communications service for shipping is provided covering the East and West Coasts, the Great Lakes, the St. Lawrence River and Gulf, Hudson Bay and Hudson Strait.

Coast radio stations provide a safety watch and communications service for ships at sea and provide, as well, regularly broadcast weather reports, storm warnings and notices of dangers to navigation. Ships at sea may obtain medical advice from any coast station. The messages are delivered to the port medical officer of the Department of National Health and Welfare and replies are transmitted to the ship free of charge. The stations carry out communications by radiotelegraph and/or radiotelephone and many of them provide connections to land telephone lines so that ships may communicate directly with any telephone subscriber. At Halifax (CFH) and Vancouver (CKN), shortwave facilities are furnished for world-wide communications. These stations participate in the Commonwealth long-range ship communication scheme. The coast stations on Hudson Bay and Hudson Strait, in addition to the regular services, provide commercial communications for posts of the Hudson's Bay Company and various prospecting and development organizations, make weather observations, handle administrative traffic and assist aircraft with information, landing conditions and direction finding bearings.

Coast radio direction finding stations, operated on Hudson Strait, enable ships to obtain a line of bearing from the station. No charge is made for this service.

Automatic radiobeacon stations are maintained on the East and West Coasts, the St. Lawrence River and Gulf, and Hudson Bay and Strait, to provide a navigational aid to mariners by transmitting signals on which bearings may be taken by ships. These stations are arranged, where possible, in groups of three, transmitting on a common frequency but in proper time sequence so as to avoid interfering with one another. A navigator may thus obtain three bearings within three consecutive minutes and fix his location. For distance finding in foggy weather, a number of radiobeacons are synchronized with fog alarms at the same point. Ships may also request the transmission of signals from the coast stations for direction finding purposes.

Loran is a long-range radio aid to marine and air navigation which provides accurate fixes at distances up to 600 miles by day and 1,500 miles by night. Two Loran stations operate in Nova Scotia, three in Newfoundland and one on the West Coast. These stations, in conjunction with Loran stations of the United States Coast Guard, give service to ships and aircraft plying the North Atlantic and Pacific Oceans.

Decca is a short-range radio aid to navigation which provides accurate fixes at distances up to 250 miles. Four chains of Decca stations are in operation, the East and West Newfoundland Chains, the Nova Scotia Chain and the Anticosti Chain. These stations give service to ships off Newfoundland and Nova Scotia, and in the St. Lawrence River and Gulf.

Radar is a valuable aid to marine navigation and it has become general practice to equip merchant ships with this device. Important buoys are fitted with radar reflectors to increase their radar visibility. Two shore-based radar installations are in operation—one at Camperdown near the mouth of Halifax Harbour and the other on the Lion's Gate Bridge across the entrance to Vancouver Harbour. (See also p. 850—Airport and airway surveillance radars.)

Low-powered transceivers are provided for use in emergencies at lighthouses, particularly at locations where they would otherwise be completely cut off from summoning help in case of illness.

Aeronautical Navigation.—Radio aids to air navigation are provided from coast to coast and from the Canada-United States border to the Arctic along and off the airways, and are used by many Canadian and foreign air carriers flying over Canadian territory. Six regional offices located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., and Moncton, N.B., carry out the construction and efficient operation of facilities.

Low-frequency *radio range stations*, located approximately every hundred miles along airways, provide specific track guidance to pilots by means of audible signals and the signals may also be used for the purpose of obtaining direction finding bearings. In addition, radiotelephone communications are provided between ground and aircraft, by which means pilots may obtain weather data, air traffic control instructions and other information concerning the safety of flights.

Thirty-four very high frequency *omni-directional ranges* (VOR) are now in operation. Unlike the low-frequency radio range stations, this type of facility does not limit the aircraft using the station to one of four distinct courses but enables the pilot to select any desired course. The 34 omni-directional ranges have permitted the establishment of VOR airways across Canada and of 25 trans-border airways. Seven additional installations under construction are scheduled for operation by the autumn of 1962 and three others at a later date.

Aeronautical radiobeacon stations provide radio signals with which pilots may use their direction finding equipment to obtain relative directional bearings. *Fan markers*, operating on very high frequencies, are usually placed on an airway so as to inform the pilot when he may safely lose altitude after passing high terrain or to indicate accurately the distance from an airport. *Station location markers* are similar to fan markers except that the signal radiated is such that aircraft may receive the same indication irrespective of the direction of flight. They are installed at the same location as a radio range to enable a pilot to determine when he is exactly over the station, thus obtaining definite indication of position. Station location markers are installed at most radio range sites.

Airport and airway surveillance radars (150 nautical-mile) are in operation at 14 airports for air traffic control purposes. One additional installation under construction is expected to be completed by late autumn 1962. A 50-mile-range surveillance radar at Gander forms part of a complete ground-controlled approach facility. A Precision Approach Radar facility is in operation at Toronto International Airport and another under construction at Montreal International Airport will be in operation by mid-1962.

Instrument landing systems (ILS) provide radio signals which, when received by special radio equipment aboard aircraft, permit pilots to approach airports for landing during periods of very low visibility. An installation normally consists of a localizer transmitter providing lateral guidance to the runway, a glide path transmitter for slope guidance to the approach end of the runway, two marker transmitters giving distance indications from the runway and a low-power radiobeacon (compass locator) to assist in holding procedures and lining up on the localizer course. The localizer and marker transmitters operate on very high frequencies, the glide path on ultra high frequencies and the compass locators on low and medium frequencies. Thirty-five instrument landing systems are in operation.

To assist in providing communication between aircraft and ground, *aeronautical radio communications stations* are located at strategic points across the country, including the Arctic. These stations, operating for the most part on high frequencies, provide communication with both domestic and international air carriers. The 13 international communication stations provide coverage from coast to coast as well as over the oceans and form a major contribution on the part of Canada to international aviation. Their functions may be grouped as follows: (1) communication for meteorological services; (2) communication for air traffic control services; and (3) communication for the benefit of airline operating agencies with their aircraft and between their dispatch offices.

Subsection 7.—Miscellaneous Radio Communication Services

In addition to radio communication services provided by the Federal Government, radio services have been established by all provincial governments, mainly for police, highway and forestry protection purposes.

Municipal government departments have steadily increased their use of radio to facilitate operations particularly as a medium of communication with vehicles—police,

fire, engineering, hydro, etc. Such services as taxi, heavy construction, ready-mix concrete, oil pipeline construction and operation, veterinarian and rural medical have participated extensively in the use of radio.

Public utilities, power companies, provincial power commissions, oil exploration and mineral development organizations have expanded considerably their use of radio in both urban mobile and point-to-point radio fields.

The member companies of the Telephone Association of Canada (see p. 839) operate coast-to-coast microwave facilities to augment existing inter-city communication services and to provide television network service. This system has a number of trans-border (Canada-United States) inter-connections. The railway companies also operate a number of large microwave radio systems to facilitate their inter-city communication services. Telephone companies and the railways are extending communication service, by means of radio, to northern areas and other areas not served by normal wire facilities where such service was previously not available. In addition, the telephone companies provide an extension of land telephone service, by radio, to suitably equipped vehicles. This service is available in all major cities in Canada and along many of the nation's arterial highways. Restricted common-carrier mobile radio service (this service to vehicles does not permit inter-connection with the over-all telephone system but only with specific dispatchers) is available in most major cities in Canada as well as in a number of smaller urban centres. The latter service is provided by telephone companies as well as by other common-carrier organizations.

Subsection 8.—Radio and Television Broadcasting*

Broadcasting in Canada has developed over a period of some forty years as a combination of public and private enterprise. Since the opening program from Canada's first radio station was beamed into a few Montreal homes in 1918, the role of the radio and television program in the daily life of the Canadian family has grown to startling prominence. Today, radio service reaches 98 p.c. of Canada's homes and its programs are listened to for an average of two hours and 20 minutes a day. Television reaches over 90 p. c. of the homes and is watched for an average period of four hours and 45 minutes a day.

To have become such an integral force in the daily life of the nation, broadcasting had to learn the needs of the people and how to serve them. Two official languages forming two distinct cultures had to be served independently but without diminishing the concept of national unity. Dozens of other smaller groups, distinct in culture and frequently dwelling in the same radio or TV coverage area but in separate communities with widely divergent program interests, had to be served. Physical problems of distance and geography had to be overcome. It requires some 360 radio transmitters and 105 TV stations and satellites to reach a population distributed across a 4,000-mile southern frontier, through seven time zones and a variety of topographical and climatic regions, and scattered northwest through thousands of square miles to the shores of the Arctic Ocean. Not only do these people have local service that is a reflection of life in their own districts, but by means of 15,000 miles of land lines for radio networks and 8,500 miles of microwave circuits for television nearly every Canadian may, at the same time, listen or watch as an event of national interest takes place.

Since 1932, a publicly owned body, now known as the Canadian Broadcasting Corporation, created to develop a national service, has worked with the private or independent station-owner to establish this service. A more recent addition is the Board of Broadcast Governors. Each of these—the private station-owner, the CBC and the BBG—is playing a responsible part in the present efforts to refine and develop broadcasting service.

The Broadcasting Act, proclaimed in November 1958, established the Board of Broadcast Governors to consist of three full-time members including the Chairman and

*With the exception of the paragraphs relating to the establishment and functions of the Board of Broadcast Governors and the material on privately owned stations (pp. 859-860) prepared by the Secretary of the Board, the material in this Subsection was supplied by the Information Services of the Canadian Broadcasting Corporation, Ottawa.

Vice-Chairman and 12 part-time members. Sect. 10 of this Act provides that the Board of Broadcast Governors shall "for the purpose of ensuring the continued existence and efficient operation of a national broadcasting system and the provision of a varied and comprehensive broadcasting service of a high standard that is basically Canadian in content and character, regulate the establishment and operation of networks of broadcasting stations, the activities of public and private broadcasting stations in Canada and the relationship between them, and provide for the final determination of all matters and questions in relation thereto".

The Broadcasting Act also requires that, before dealing with any application for a licence to establish a broadcasting station or for an increase in power, change of frequency or change of location of a broadcasting station, the Minister of Transport must receive a recommendation from the Board of Broadcast Governors. The same requirement exists with respect to the making of a new regulation or effecting changes in the regulations under the Radio Act. Before making the appropriate recommendation to the Minister of Transport, the Board considers all such applications at a public hearing at which the applicant, licensees and the Canadian Broadcasting Corporation are given the opportunity of being heard.

Under the provisions of the Radio Act, the Minister of Transport must also receive a recommendation from the Board before dealing with any application to change the ownership or control of any share of capital stock in the licensee of a broadcasting station which is incorporated as a private company. The Board of Broadcast Governors has established a policy that any such application, which would result in a change of ownership or control of a licensee, would be referred to a public hearing before a recommendation is made to the Minister. Applications of this kind not involving a change of ownership or control may be dealt with by the Board or the Executive Committee of the Board at a regular meeting.

Under the provisions of the Broadcasting Act, the Board has issued the Radio Broadcasting Stations Regulations and the Radio (TV) Broadcasting Regulations, these regulations applying to radio and television stations respectively, covering all aspects of station operation and the enforcement of them as the responsibility of the Board.

From its establishment in November 1958 to March 1962, the Board made 494 recommendations to the Minister of Transport on applications referred to it under Sect. 12 of the Act.

The Broadcasting Act also provides authority for the publicly owned Canadian Broadcasting Corporation, established "for the purpose of operating a national broadcasting service". The Corporation consists of a President and a Vice-President and nine other directors appointed by the Governor in Council. It is accountable to Parliament through a Cabinet Minister designated by the Governor in Council and is empowered to establish and maintain program networks and stations.

As of Mar. 1, 1962, there were 37 CBC radio stations and 17 CBC television stations; 203 privately owned radio stations and 59 privately owned television stations. All but 11 of the privately owned television stations and many of the privately owned radio stations are affiliated with the CBC and help to distribute national radio and television services over six networks operated by the CBC.

Radio Broadcasting Facilities.—The CBC operates three AM radio networks—the Trans-Canada and Dominion networks serving English-language audiences from the Atlantic to the Pacific, and the French-language network extending from Moncton, N.B., to Edmonton, Alta. As at Mar. 1, 1962, the Trans-Canada network was made up of 26 basic stations—13 CBC-owned and 13 privately owned. There were 29 supplementary stations, four of which were CBC-owned Newfoundland stations and eight of which were stations of the CBC Northern Service. The Dominion network consisted of 31 basic stations of which 30 were privately owned. Nineteen supplementary privately owned stations also received Dominion network service. The French network had five basic stations, four of which were CBC-owned and one privately owned, and 22 privately owned supplementary stations.

Table 8 lists the broadcasting stations of the CBC radio networks.

8.—Broadcasting Stations of CBC Radio Networks, as at Mar. 1, 1962

NOTE.—The stations marked with an asterisk (*) are CBC-owned. The symbols used in the Power column have the following meanings: D, daytime; N, night; DA-1, one directional antenna both day and night; DA-2, two directional antennae, one in daytime, the other at night; DA-N, single directional antenna used at night only. DA-D, single directional antenna used in daytime only. Wattage of some stations differs between day and night as shown.

Station and Location	Frequency	Power	Station and Location	Frequency	Power
	kc/s.	watts		kc/s.	watts
Trans-Canada Basic Network—			Trans-Canada Supplementary—concl.		
*CBI Sydney.....	1,140	5,000 DA-1	CFAC Calgary.....	960	10,000 DA-N
*CBH Halifax.....	1,340	10,000	*CHAK Inuvik.....	860	1,000
*CBA Sackville.....	1,070	50,000	*CFB Frobisher Bay.....	1,200	40
*CHSJ Saint John.....	1,150	10,000 D) DA-2	Dominion Basic Network—		
CFNB Fredericton.....	550	5,000 N) DA-2	CJCB Sydney.....	1,270	5,000 D
*CBM Montreal.....	940	50,000			1,000 N
*CBO Ottawa.....	910	5,000 DA-1	CHNS Halifax.....	960	10,000 DA-N
CKWS Kingston.....	960	5,000 DA-1	CJFX Antigonish.....	580	5,000 DA-1
*CBL Toronto.....	740	50,000	CJLS Yarmouth.....	1,340	250
CFCH North Bay.....	600	10,000 D) DA-2	CFCY Charlottetown.....	630	5,000 DA-N
CJKL Kirkland Lake.....	560	5,000 DA-N	CKCW Moncton.....	1,220	10,000 DA-N
CKGB Timmins.....	680	10,000 DA-2	CFBC Saint John.....	930	10,000 D) DA-2
CKSO Sudbury.....	790	10,000 D) DA-2			5,000 N
		5,000 N) DA-2	CKNB Campbellton.....	950	1,000 DA-1
*CBE Windsor.....	1,550	10,000 DA-1	CKTS Sherbrooke.....	900	1,000 DA-N
CJIC Sault Ste. Marie...	1,050	10,000 D) DA-N	CFCF Montreal.....	600	5,000 DA-1
		2,500 N	CKOY Ottawa.....	1,310	5,000 D
CKPR Fort William.....	580	5,000 D			1,000 DA-N
		1,000 N	CHOV Pembroke.....	1,350	1,000 DA-1
*CBW Winnipeg.....	990	50,000	CFJR Brockville.....	1,450	1,000 DA-D
*CBK Regina.....	540	50,000			250 N
*CBX Edmonton.....	1,010	50,000 DA-1	CHEX Peterborough.....	980	5,000 DA-2
*CBXA Edmonton.....	740	250	*CJBC Toronto.....	860	50,000
CJOC Lethbridge.....	1,220	10,000 D	CFPL London.....	980	10,000 D) DA-2
		5,000 DA-N			5,000 N
CFJC Kamloops.....	910	10,000 D	CFCO Chatham.....	630	1,000 DA-1
		1,000 N	CFPA Port Arthur.....	1,230	1,000 D
CKOV Kelowna.....	630	1,000			250 N
CJAT Trail.....	610	1,000	CJRL Kenora.....	1,220	1,000
*CBU Vancouver.....	690	10,000 DA-1	CKRC Winnipeg.....	630	5,000 DA-N
*CFPR Prince Rupert.....	1,240	250	CKX Brandon.....	1,150	10,000 D
Trans-Canada Supplementary—					1,000 N
*CFGB Goose Bay.....	1,340	250	CJGX Yorkton.....	940	10,000 D
*CBN St. John's.....	640	10,000			1,000 N
*CBY Corner Brook.....	790	1,000	CKBI Prince Albert.....	900	10,000 DA-2
*CBG Gander.....	1,450	250	CFQC Saskatoon.....	600	5,000 DA-N
*CBT Grand Falls.....	990	1,000	CHAB Moose Jaw.....	800	10,000 DA-N
CKEC New Glasgow.....	1,320	540	CKRM Regina.....	980	10,000 D) DA-2
		5,000 DA-N			5,000 N
CKBW Bridgewater.....	1,000	1,000 DA-N	CERN Edmonton.....	1,260	50,000 DA-N
CKMR Newcastle.....	790	1,000 DA-1	CFCN Calgary.....	1,060	10,000 DA-N
CKBC Bathurst.....	1,400	250	CHWK Chilliwick.....	1,270	10,000 DA-1
CJQC Quebec.....	1,340	250	CJOR Vancouver.....	600	5,000 DA-1
CKOC Hamilton.....	1,150	5,000 DA-2	CJVI Victoria.....	900	10,000 DA-1
CHLO St. Thomas.....	680	1,000 DA-1	Dominion Supplementary—		
CHOK Sarnia.....	1,070	5,000 D	CHML Hamilton.....	900	5,000 DA-1
		1,000 DA-N	CKTB St. Catharines.....	610	10,000 D) DA-1
CJNR Blind River.....	730	1,000 DA-N			5,000 N
CFAR Flin Flon.....	590	1,000	CFOR Orillia.....	1,570	10,000 D
*CHFC Fort Churchill.....	1,230	250			1,000 N
*CFYK Yellowknife.....	1,340	250	CHNO Sudbury.....	900	10,000 D) DA-2
*CBXH Fort Smith.....	860	40			1,000 N
*CFHR Hay River.....	1,490	40	CHAT Medicine Hat.....	1,270	1,000 DA-1
*CFWH Whitehorse.....	1,240	250	CJIB Vernon.....	940	1,000
CFGP Grande Prairie.....	1,050	10,000 DA-1	CFOB Fort Frances.....	800	1,000 D
CKLN Nelson.....	1,390	1,000 DA-1			500 N
CKPG Prince George.....	550	250	CKCV Quebec.....	1,280	5,000 DA-1
CJCD Dawson Creek.....	1,350	1,000	CJSS Cornwall.....	1,220	1,000 DA-2
CJCA Edmonton.....	930	10,000 D) DA-N	CJBC Belleville.....	800	1,000 DA-1
		5,000 N) DA-N	CKCR Kitchener.....	1,490	250
CKCK Regina.....	620	5,000 DA-N	CJCS Stratford.....	1,240	250
			CKPC Brantford.....	1,380	10,000 DA-2

8.—Broadcasting Stations of CBC Radio Networks, as at Mar. 1, 1962—concluded

Station and Location	Frequency	Power	Station and Location	Frequency	Power
	kc/s.	watts		kc/s.	watts
Dominion Supplementary—concluded			French Supplementary—concluded		
CKNX Wingham.....	920	2,500 D } DA-2 1,000 N	CKCH Hull.....	970	5,000 DA-1
CFOS Owen Sound.....	560	1,000 DA-2	CJFP Rivière du Loup...	1,400	1,000 D 250 N
CKLW Windsor.....	800	50,000 DA-2	CJAF Cabano (rebroad-		
CKRD Red Deer.....	850	1,000 DA-1	casting station of		
CKLC Kingston.....	1,380	5,000 DA-2	CJFP).....	1,340	250
CKOK Penticton.....	800	10,000 D 500 N	CKVD Val d'Or.....	1,230	1,000 D 250 N
French Basic Network—			CHAD Amos.....	1,340	250
*CBJ Chicoutimi.....	1,580	10,000 DA-1	CKRN Rouyn.....	1,400	250
*CBV Quebec.....	980	5,000 DA-1	CKLS La Sarre.....	1,240	250
*CBF Montreal.....	690	50,000	CKLD Thetford Mines...	1,230	250
*CBAF Moncton.....	1,300	5,000 DA-1	CFCL Timmins.....	680	10,000 D } DA-2 2,500 N
CHNC New Carlisle.....	610	5,000 DA-1	CKSB St. Boniface.....	1,050	10,000 DA-N
French Supplementary—			CHFA Edmonton.....	680	5,000 DA-1
CJEM Edmundston.....	570	1,000 DA-N	CFNS Saskatoon.....	1,170	1,000 DA-1
CJBR Rimouski.....	990	10,000 DA-N	CFRG Gravelbourg.....	710	5,000 D
CHLT Sherbrooke.....	630	10,000 D } DA-2 5,000 N	CFRG Gravelbourg.....	1,230	250 N
CHGB Ste. Anne de la			CFBR Sudbury.....	550	1,000 D
Pocatière.....	1,350	1,000 D 250 N	CKBL Matane.....	1,250	5,000 DA-1
			CKVM Ville Marie.....	710	1,000 DA-N
			CKRB Ville St. Georges..	1,460	10,000 D } DA-N 5,000 N

CBC Northern Radio Service.—Since November 1958 five radio stations in Northern Canada have been taken over by the CBC—at Whitehorse in the Yukon Territory, at Yellowknife and Hay River in the Northwest Territories, at Goose Bay in Labrador, and at Fort Churchill in northern Manitoba. Three others have been built—at Fort Smith, Inuvik and Frobisher Bay in the Northwest Territories. Low-power relay transmitters* were installed at Fort Nelson, B.C., and Dawson, Hays, Elsa and Watson Lake in the Yukon Territory.

Northern stations are able to pick up and relay news and topical programs from CBC transmitters at Lacombe, Alta., Watrous, Sask., and Sackville, N.B. Greater use of facilities at Sackville has resulted in the transmission of programs more extensively to the North.

Network features are provided for all stations on tapes recorded in Montreal and flown to the North on regular airline flights. The stations are staffed with local recruits wherever possible and the CBC Northern Service works closely with the educational service of the Department of Northern Affairs and National Resources.

*An automatic transmitter connected to a network line which relays the network service.

9.—CBC Radio Stations in Northern Canada

Station and Location	Frequency	Power	Date of Start of CBC Operation
	kc/s.	watts	
CFWH Whitehorse, Y.T.....	1,240	250	Nov. 10, 1958
CFYK Yellowknife, N.W.T.....	1,340	250	Dec. 13, 1958
CFGB Goose Bay, Labrador.....	1,340	1,000	Feb. 23, 1959
CBXH Fort Smith, N.W.T.....	860	40	May 29, 1959
CFHR Hay River, N.W.T.....	1,490	40	Sept. 7, 1959
CHFC Fort Churchill, Man.....	1,230	250	Sept. 13, 1959
CHAK Inuvik, N.W.T.....	860	1,000	Nov. 26, 1960
CFFB Frobisher Bay, N.W.T.....	1,200	40	Feb. 5, 1961

FM Radio.—With the opening of the three-city CBC-FM network on Apr. 4, 1960, a new bilingual aspect entered Canadian network radio. The network is bilingual in the sense that each station in Toronto, Ottawa and Montreal announces the programs it originates in English or French, without translation into the other language. At the start of each day's programming, however, a program résumé is given in both English and French.

The schedule planners have placed emphasis on the best of the world's music, both popular and classical, live and recorded. CBC news, talks and commentaries in depth and great dramatic works in English and French are also presented.

The network broadcasts during the evening hours from 7 p.m. to midnight, Monday to Friday, and from noon to midnight on Saturday and Sunday. The network links three existing CBC stations—CBC-FM in Toronto, CBM-FM in Montreal, and CBO-FM in Ottawa.

10.—CBC-FM Stations

Station and Location		Frequency	Power	Station and Location		Frequency	Power
		mc/s.	kw.			mc/s.	kw.
FM Network—				French—			
CBC-FM	Toronto, Ont.....	99.1	11.90	CBF-FM	Montreal, Que.....	95.1	3.86
CBM-FM	Montreal, Que.....	100.7	3.86	Other—			
CBO-FM	Ottawa, Ont.....	103.3	0.38	CBU-FM	Vancouver, B.C.....	105.7	1.40

Television Broadcasting Facilities.—As of Mar. 1, 1962, there were 76 television stations in Canada, including three network relay stations plus 40 rebroadcasting stations.* There were 51 television stations in operation on the English network, 12 of which were CBC-owned. On the French network, 14 stations were in operation, five of which were CBC-owned. The CBC and affiliated stations, plus supplementary stations and rebroadcasting and network repeater stations, were located and powered as shown in Table 11.

*"Station" is defined as a transmitter with production facilities; a "rebroadcasting station" picks up and relays the signal of a master station; and a "network relay station" is an automatic unmanned transmitter connected to a network line which relays the network service.

11.—Broadcasting Facilities of CBC Television Networks, as at Mar. 1, 1962

NOTE.—An asterisk denotes a network relay station.

Station and Location		Channel	Effective Radiated Power		Station and Location		Channel	Effective Radiated Power	
			Video	Audio				Video	Audio
			watts	watts				watts	watts
English Network					English Network—continued				
CBC—					Affiliates—				
CBYT	Corner Brook, Nfld.....	5	197	98.5	CJON-TV	St. John's, Nfld..	6	62,000	33,000
CBHT	Halifax, N.S.....	3	56,000	34,000	CFCY-TV	Charlottetown, P.E.I.....	13	33,600	19,300
CBLT	Toronto, Ont.....	6	99,500	53,500	CFXU-TV	Antigonish, N.S..	9	73,000	37,000
CBOT	Ottawa, Ont.....	4	50,100	26,700	CJCB-TV	Sydney, N.S.....	4	100,000	60,000
CBMT	Montreal, Que.....	6	43,800	26,200	CKCW-TV	Moncton, N.B....	2	25,000	15,000
CBWT	Winnipeg, Man....	3	57,800	34,700	CHSJ-TV	Saint John, N.B..	4	100,000	50,000
CBXT	Edmonton, Alta....	5	318,000	159,000	CHEX-TV	Peterborough, Ont.....	12	102,000	61,200
CBUT	Vancouver, B.C....	2	47,600	25,400	CKWS-TV	Kingston, Ont....	11	130,000	78,000
*CBWAT	Kenora, Ont.....	8	493	247	KCO-TV	Kitchener, Ont....	13	325,000	160,000
CFSN-TV	Stephenville, Nfld.....	8	294	147	CEPL-TV	London, Ont.....	10	325,000	195,000
CFLA-TV	Goose Bay, Labrador.....	8	348	174	CKNX-TV	Wingham, Ont....	8	90,000	55,000
*CBUAT	Trail, B.C.....	11	187	124	CKLW-TV	Windsor, Ont....	9	178,000	107,000
					CKVR-TV	Barrie, Ont.....	3	100,000	50,000
					CFCH-TV	North Bay, Ont..	10	28,500	14,250

11.—Broadcasting Facilities of CBC Television Networks, as at Mar. 1, 1962—concluded

Station and Location		Chan- nel	Effective Radiated Power		Station and Location		Chan- nel	Effective Radiated Power	
			Video	Audio				Video	Audio
English Network—continued					English Network—concluded				
Affiliates—concluded					Supplementary Stations—concl.				
CKSO-TV	Sudbury, Ont.....	5	30,000	16,000	CHBC-TV	Kelowna, B.C....	2	3,700	1,650
CFCL-TV	Timmins, Ont.....	6	100,000	50,000	CHSA-TV	Lloydminster, Sask.....	2	14,630	7,300
CJIC-TV	Sault Ste. Marie, Ont.....	2	28,000	15,000					
CFCJ-TV	Port Arthur, Ont.	2	55,400	30,200					
CKX-TV	Brandon, Man....	5	19,300	9,650					
CKCK-TV	Regina, Sask....	2	100,000	53,500					
CFQC-TV	Saskatoon, Sask.	8	180,000	100,000					
CHAT-TV	Medicine Hat, Alta.....	6	5,700	3,000	French Network				
CHCT-TV	Calgary, Alta....	2	100,000	50,000	CBC—				
CJLH-TV	Lethbridge, Alta.	7	95,100	44,900	CBAFT	Moncton, N.B....	11	600	324
CKPG-TV	Prince George, B.C.....	3	220	110	CBOFT	Ottawa, Ont.....	9	31,000	17,000
CHEK-TV	Victoria, B.C....	6	100,000	50,000	CBFT	Montreal, Que....	2	100,000	50,000
					CBWFT	Winnipeg, Man....	6	2,870	1,720
					*CBFST	Sturgeon Falls, Ont.....	7	9,750	5,270
Supplementary Stations—					Affiliates—				
CJCN-TV	Grand Falls, Nfld.....	4	8,600	4,300	CHLT-TV	Sherbrooke, Que..	7	170,000	100,000
CKML-TV	Quebec, Que....	5	13,850	6,770	CKTM-TV	Trois Rivières, Que.....	13	42,500	21,250
CKRN-TV	Rouyn, Que....	4	115,000	57,500			4	100,000	50,000
CHOV-TV	Pembroke, Ont..	5	19,100	9,500	CFCM-TV	Quebec, Que....	12	20,000	10,000
CHAB-TV	Moose Jaw, Sask.	4	48,000	25,000	CKRS-TV	Jonquière, Que....	3	49,300	28,000
CKBL-TV	Prince Albert, Sask.....	5	61,000	36,500	CJBR-TV	Rimouski, Que....	9	150,000	60,000
CJFB-TV	Swift Current, Sask.....	5	13,300	6,650	CKBL-TV	Matane, Que....	4	115,000	67,500
CKOS-TV	Yorkton, Sask....	3	5,000	2,500	CKRN-TV	Rouyn, Que....	5	52,500	26,250
CHCA-TV	Red Deer, Alta..	6	6,600	3,300	CHAU-TV	New Carlisle, Que.....			
CJDC-TV	Dawson Creek, B.C.....	5	212	106	Supplementary Stations—				
CFCR-TV	Kamloops, B.C..	4	950	475	CFCL-TV	Timmins, Ont....	6	100,000	50,000

About 90 p.c. of Canada's population is covered by Canadian television stations. Microwave facilities linking television stations from coast to coast for instantaneous telecasting of programs went into full operation July 1, 1958. In June 1959 these facilities were extended from Sydney, N.S., to St. John's, Nfld., providing a direct visual link between all ten provinces. When television broadcasting began in September 1952, television sets in use in Canada totalled 146,000. One year later the number had tripled and by Mar. 1, 1962 it was estimated that programs of the CBC networks could be viewed in approximately 3,700,000 Canadian homes.

Canadian Broadcasting Corporation Services.—The CBC's Head Office is in Ottawa and from that point over-all direction is provided for the two complete and distinct broadcasting services, one in English and the other in French. Headquarters and main production facilities for the French networks are in Montreal and for the English networks, in Toronto. A truly national program service is provided to the whole country on these networks by programs contributed from the CBC's nine operating divisions: British Columbia, the Prairie Provinces, Quebec, Ontario, Ottawa area, the Maritimes, Newfoundland, the Northern and Armed Forces Service, and the International Service. Facilities for the production of radio programs have been developed in some 25 communities as far apart as Prince Rupert in British Columbia, Corner Brook in Newfoundland and Inuvik in the Northwest Territories. Television production facilities have been developed at nine of these 25 locations.

Domestic Radio Program Service.—During the year ended Mar. 31, 1961, about 1,500 programs representing 506 hours of broadcasting, were presented each week over the CBC's Trans-Canada, Dominion and French networks. Of the total broadcasting hours in 1960-61, 72 p.c. were released on the Trans-Canada network; the Dominion network released 5 p.c. and 23 p.c. were carried on the French network.

The CBC originated and produced 93 p.c. of its network broadcasts. Of the remainder, 1 p.c. came from the private stations, 2 p.c. were exchange programs from the United States, 3 p.c. from Britain, and 1 p.c. came from other countries. An analysis of network programs by categories for 1960-61 shows that a large proportion of CBC radio network time was devoted to music—an estimated 43 p.c.; 60 p.c. of programming was predominantly entertainment (music, drama, sports, etc.); 25 p.c. was predominantly information programs (news and weather, farm and fisheries, science, nature, etc.); and 15 p.c. was predominantly idea or opinion programs.

12.—Hours of English and French Radio Network Programming, by Category

NOTE.—Estimated on basis of sample week, Jan. 22-28, 1961.

Category	Hours per Week	Distribu- tion of Hours	Category	Hours per Week	Distribu- tion of Hours
	No.	p.c.		No.	p.c.
Music, serious.....	60	12	Sports.....	20	4
Music, other.....	161	31	School and youth education.....	15	3
News and weather.....	70	14	Political and controversial.....	10	2
Miscellaneous entertainment.....	40	8	Miscellaneous information.....	25	5
Drama.....	25	5	Social and human relations.....	1	--
Farm and fisheries.....	25	5	Science and nature.....	1	--
Canadian ideas and heritage.....	25	5	Other countries.....	5	1
Religious.....	20	4			
Home and hobby.....	5	1	Totals.....	506	100

¹ Less than one hour of broadcasting.

Domestic Television Program Service.—During the year ended Mar. 31, 1961, the CBC English-language television network presented 67 hours per week of programs. Of this, 70 p.c. was produced by the CBC, 28 p.c. was drawn from sources in the United States, and 2 p.c. from Britain. Of the 64 hours presented each week on the French network, 76 p.c. originated with the CBC, 2 p.c. with other Canadian sources, 12 p.c. with sources in France, 8 p.c. in the United States, and 2 p.c. in Britain.

13.—Hours of English and French Television Network Programming, by Category

NOTE.—Estimated on basis of sample week, Jan. 22-28, 1961.

Category	Hours per Week	Distribu- tion of Hours	Category	Hours per Week	Distribu- tion of Hours
	No.	p.c.		No.	p.c.
Drama.....	39	30	Religious.....	4	3
Variety and other entertainment.....	17	13	Science and nature.....	4	3
Sports.....	13	10	School and youth education.....	3	2
News and weather.....	7	5	Political and controversial.....	5	4
Canadian ideas and heritage.....	4	3	Home and hobby.....	7	5
Music.....	10	8	Farm and fisheries.....	1	1
Other countries.....	4	3	Other.....	1	--
Miscellaneous information.....	10	8			
Social and human relations.....	3	2	Totals.....	131	100

¹ Less than one hour of broadcasting.

CBC International Service.—The International Service of the Canadian Broadcasting Corporation broadcasts news, news reports, commentaries, interviews, talks, accounts of special events, actualities and other programs that tell people in other lands about life in Canada. The headquarters and studios are in the Radio-Canada Building in Montreal and the two 50-kw. shortwave transmitters and antenna arrays are in Sackville, N.B. The programs are transmitted directly by shortwave to listeners in 11 languages—English, French, German, Czech, Slovak, Russian, Ukrainian, Polish, Hungarian, Spanish and Portuguese. Shortwave service to Africa in English and French was inaugurated in 1961. A recorded program service is provided regularly to radio organizations in Austria, Finland and Greece. As required, all radio organizations throughout the world are provided with special relays and recorded programs.

The International Service also provides a Transcription Service to radio organizations in other countries. This consists of music and spoken-word recordings on long-playing discs. The music transcriptions feature the works of Canadian composers, performers, arrangers, conductors and orchestras. The spoken-word transcriptions in the English, French and Spanish languages include programs that deal with Canadian drama, history, biography, folklore, documentaries and literature.

In addition to their use for the regular programs of the International Service, the shortwave transmitters at Sackville are employed to provide programs for people living in Canada's Far North and for relay to the members of Canada's Armed Forces stationed abroad. On special occasions, the regular facilities of the International Service are supplemented by commercial radiotelephone facilities to provide simultaneous service to areas of the world beyond the range of the signal from Sackville.

More than 400,000 letters, cards and reception reports have been received from listeners since the official inauguration of the International Service on Feb. 25, 1945. Replies are sent in the language of the letter-writer and a great variety of printed and illustrated information on all aspects of life in Canada is provided. An illustrated Program Schedule is distributed periodically to some 200,000 listeners around the world.

In addition to its international shortwave service, the CBC maintains two domestic shortwave stations—CBNX at St. John's, Nfld., and CBUX at Vancouver, B.C.—for the purpose of extending coverage of the existing standard band stations CBN and CBU.

Canadian Broadcasting Corporation Finances.—Table 14 is a statement of CBC finances for the year ended Mar. 31, 1961. During that year the Corporation supplemented its income from the public treasury by \$37,601,651 from commercial sales, reflecting a slight decrease in commercial revenue.

14.—Financial Statement of CBC Operations, Years Ended Mar. 31, 1960 and 1961

Item	1960	1961
	\$	\$
Income—		
Commercial revenue (gross).....	38,162,337	37,601,651
Interest on investments.....	109,199	145,645
Miscellaneous.....	292,404	340,927
Totals, Income.....	38,563,940	38,088,223

14.—Financial Statement of CBC Operations, Years Ended Mar. 31, 1960 and 1961—concluded

Item	1960	1961
Expenses—	\$	\$
Cost of programs.....	57,890,301	62,784,251
Network distribution.....	9,141,504	9,237,351
Station transmission.....	3,010,832	3,635,492
Payments to private stations.....	5,333,470	5,278,928
Commission to agencies and networks.....	5,582,000	5,187,441
Northern radio service.....	490,860	760,126
Operational supervision and services.....	6,877,848	7,830,646
Program.....	2,353,525	2,806,282
Administrative.....	2,726,415	3,098,113
General.....	1,797,908	1,926,246
Selling and general administration.....	5,702,950	6,238,590
Selling expense.....	1,232,043	1,556,026
Engineering and development.....	1,051,347	899,720
Management and central services.....	3,419,560	3,982,844
Totals, Expenses.....	94,039,765¹	100,952,825²
Excess of Expenses over Income.....	55,475,825	62,864,602
Recoverable by way of parliamentary grant in respect of the net operating requirements of the radio and television services.....	52,300,278	59,288,476
Depreciation.....	3,175,547	3,576,126
	55,475,825	62,864,602

¹ Includes \$50,375 for executive officers' remuneration, \$34,900 for honoraria to directors and \$36,961 for legal expenses.

² Includes \$172,750 for executive officers' remuneration, \$32,000 for honoraria to directors and \$51,156 for legal expenses.

Privately Owned Stations.—As already stated, privately owned broadcasting stations are subject to the Radio Act, the Canadian Broadcasting Act and Regulations made thereunder, and the provisions of the Radio Regulations annexed to the International Telecommunication Convention and Regional Agreements in effect in Canada. Since Mar. 31, 1923, private commercial broadcasting station licences have been required by government regulation and both sound and television broadcasting stations are now authorized by this class of licence.

Any application for a licence to establish a new private station or for an increase in power, change of channel, or change of location of any existing private station must be referred by the Minister of Transport to the Board of Broadcast Governors. The Broadcasting Act requires that the Board consider such applications at a public hearing and following the hearing the Board makes a recommendation to the Minister of Transport. The approval of the Governor in Council must be obtained before any licence for a new private station is issued. Private commercial broadcasting station licences are conditional upon the ownership or control of the stations, and none of the shares of capital stock of licensed private companies nor the control of licensed public companies may be changed without the permission of the Minister of Transport having been first obtained upon the recommendation of the Board of Broadcast Governors. The Board of Broadcast Governors has ruled that any change in share structure of a licensee involving a change of ownership or control of the licensee will be considered at a public hearing of the Board before a recommendation is made to the Minister. The Radio Broadcasting Stations Regulations require all broadcasting stations to present to the Board at the end of each week a program log for that week indicating the total programming carried by the station. Organizational and financial statements are filed annually, on a confidential basis, with the Department of Transport.

The first sound broadcasting in Canada took place when a privately owned communications company in Montreal was authorized to transmit programs on an experimental basis during the latter part of 1918 and in the winter evenings of 1919 over its Station XWA. Under the first licensing regulations in the year ended Mar. 31, 1923, 34 licences were issued. On Feb. 1, 1962, the number was 243, of which 207 were AM standard band stations, 30 were FM stations and six were shortwave stations.

A privately owned broadcasting station is required to pay to the Receiver General of Canada an annual licence fee based on the gross revenue for licence fee computation for the fiscal year of the station.

The first privately owned television broadcasting station in Canada, located at Sudbury, Ont., was authorized to commence scheduled broadcasting on Oct. 20, 1953. By Mar. 1, 1962, 59 privately owned television stations were in operation (see Table 11).

Section 2.—The Post Office

The Canada Post Office Department was created at the time of Confederation in 1867 by the Canada Post Office Act to superintend and manage the postal service of Canada under the direction of a Postmaster General. For almost a century before Confederation, postal services in the Canadian provinces had been controlled by the British Postmaster General and administered by his deputies. Under the French régime a courier service had been organized as early as 1703 between Quebec, Trois Rivières and Montreal. In 1734 a post road was constructed over the same route and post houses, complete with post horses and vehicles, were established for the use of travellers. In 1851 the control of their post offices was assumed by the different provinces of British North America and at Confederation these systems merged to form the Canada Post Office.

Functions.—The basic tasks of the Canadian Postal Service are to receive, convey and deliver postal matter with security and dispatch. In discharging these duties it maintains post offices and utilizes air, railway, land and water transportation facilities. Associated functions include the sale of stamps and other articles of postage, the registration of letters and other mail for dispatch, the insuring of parcels, the accounting for COD articles, and the transaction of money order and Post Office Savings Bank business. Because of its widespread facilities, it has been found expedient for the Post Office to assist other government departments in the performance of certain tasks including the sale of unemployment insurance stamps, the collection of government annuity payments, the distribution of income tax forms and Civil Service employment application forms, and the display of government posters.

Post offices are established wherever the population warrants. Those in rural areas and small urban centres transact all of the functions of the city office. In larger urban areas postal stations and sub-post offices have full functions similar to the main post office, including a general delivery service, lock-box delivery and letter-carrier delivery.

At Mar. 31, 1961, there were 11,421 post offices in operation compared with 11,497 in 1960. Letter-carrier delivery, performed in 180 urban centres, employed over 7,900 uniformed letter carriers. Postage paid in 1960-61 by means of postage stamps amounted to \$85,807,987 as compared with \$83,961,344 in 1960. Post office money orders, issued for any amount not exceeding \$100 and payable in almost any country of the world, were sold at more than 8,400 post offices and money orders payable in Canada only, for amounts not exceeding \$16, were sold at some 2,300 additional post offices. Post Office Savings Banks operate in all parts of the country and, on Mar. 31, 1961, had total deposits of \$28,512,786.

Organization.—Following a major study of the entire Department during the period July 1961 to April 1962, a new organization plan was developed, designed to further the principle of decentralization of authority from Headquarters to the Operating Service and, at the same time, ensure that areas of accountability and control are clearly defined. The Operating Service is organized into 14 Districts, each under a District Director. Ten of the Districts report directly to the Assistant Deputy Postmaster General. In addition, there are two Regions, each consisting of two Districts and a major Post Office, under a Regional Director. These also report to the Assistant Deputy Postmaster General who carries the responsibility for conducting the normal field operations of the Postal Service. Managing the operating and support functions required in the provision of postal service to the public is the responsibility of the local postmaster. District Offices located at strategic points throughout the country assist the postmasters by providing expert technical advice and other assistance, and by performing certain administrative details. The Headquarters organization as developed, groups all operating functions under the Assistant Deputy Postmaster General and all accounting activities and financial controls under the Comptroller; the support functions of personnel, management audit service, planning and public relations each report directly to the Deputy Postmaster General.

Postal service is provided in Canada from Newfoundland to the west coast of Vancouver Island and from Pelee Island, Ont., (the most southerly inhabited point of Canada) to settlements and missions far into the Arctic. Canada's airmail system provides several transcontinental flights daily and constitutes a great air artery from St. John's, Nfld., to Victoria, B.C., intersected by branch lines and connecting lines radiating to every quarter and linking up with the United States airmail system. Since July 1, 1948, all first-class domestic mail up to and including one ounce in weight has been carried by air between one Canadian point and another, whenever delivery can thus be expedited. On Apr. 1, 1954, this service was extended to first-class items up to and including eight ounces in weight. Air stage service provides the only means of communication for many areas in the hinterland. There were approximately 41,825 miles of airmail and air stage routes in Canada in 1961 as compared with 41,069 miles in 1960.

The principal means of mail transportation is the railway mail service that operates along 22,550 miles of track and, in 1961, covered more than 34,900,000 service-miles. A staff of 667 mail clerks prepared the mails for prompt delivery and dispatch while en route in railway mail cars.

The rural mail delivery organization provided direct postal service over approximately 5,600 rural mail routes in 1961, extending over 142,400 route-miles and serving 530,846 rural mail boxes. Rural mail routes are generally circular in pattern and average about 25.7 miles in length. Considerable progress has been made toward the development of mail service by means of group boxes—a service intended for the more densely populated rural areas and for suburban residents not within the area of letter-carrier delivery service. About 2,075 side services were in operation in 1961 to transport mail between post offices, railway stations, steamer wharves and airports, and 1,966 stage services operated to convey mail to and from post offices not located on railway lines. Transportation of mail by motor vehicle on highways is being developed and over 380 such services are in operation, many of them replacing or reducing conveyance by rail. A local exchange of mails between offices on the route is effected by way-mail wallet. In 1961 there were approximately 879 city mail services transporting mail to and from post offices, postal stations and sub-post offices, collecting mail from street letter-boxes and delivering parcel post. The 9,641 land-mail service couriers employed travelled approximately 52,200,000 miles during the year. Land-mail services are performed under a contract system, the contracts being awarded to the person submitting the lowest tender and competent to provide all the requisite equipment.

Coastal mail service is conducted by 31 contractors who operate as far north along the West Coast as Alaska and on the East Coast to the northern part of Labrador.

Mechanization.—The larger post offices in Canada may be described as intricate industrial plants where mail is unloaded, cancelled, transported and shipped by semi-automatic means. Conveyor belts, automatic chutes and other devices increase output of mail matter without increasing staff and all the larger offices now being constructed are provided with the latest mechanical equipment. Even the letter carrier has been mechanized in some areas—the use of the mailmobile (part motorcycle and part truck) has shown that even the traditional door-to-door method of delivering mail can be improved upon. In most cities, postage stamps may be obtained at any time from automatic vending machines which offer a variety of denominations in neat packages. This service has been followed by the development of a curbside mail receptacle (snorkel) in which patrons may deposit mail without leaving their automobiles. Electronic methods have been introduced for the checking of money orders and for accounting for the \$900,000,000 annually that they represent. Money order forms have been redesigned to improve handling and reduce costs.

Post Office Statistics.—Tables 15 and 16 give the numbers of post offices in operation, together with revenue and expenditure for recent years.

15.—Post Offices in Operation, by Province, as at Mar. 31, 1957-61

Province or Territory	1957	1958	1959	1960	1961
	No.	No.	No.	No.	No.
Newfoundland.....	640	641	647	649	654
Prince Edward Island.....	105	105	104	104	106
Nova Scotia.....	1,117	1,096	1,031	964	901
New Brunswick.....	703	676	634	597	568
Quebec.....	2,435	2,413	2,405	2,403	2,408
Ontario.....	2,627	2,616	2,624	2,629	2,651
Manitoba.....	817	810	814	809	809
Saskatchewan.....	1,218	1,310	1,298	1,279	1,276
Alberta.....	1,124	1,112	1,089	1,082	1,071
British Columbia.....	940	937	932	922	916
Yukon Territory.....	16	16	19	20	20
Northwest Territories.....	37	36	37	39	41
Canada.....	11,879	11,768	11,634	11,497	11,421

16.—Revenue and Expenditure of the Post Office Department, Years Ended Mar. 31, 1952-61

NOTE.—Figures from 1868 will be found in the corresponding table of previous Year Books beginning with the 1911 edition.

Year	Gross Revenue	Net Revenue ¹	Expenditure ²	Surplus (+) or Deficit (—)
	\$	\$	\$	\$
1952.....	122,278,761 ^c	104,634,294 ^c	97,973,263	+6,661,031 ^c
1953.....	129,388,365	112,024,245	105,553,191	+6,471,054
1954.....	129,839,325	111,107,484	113,581,752	—2,474,268
1955.....	151,717,273	131,315,049	123,611,055	+7,703,994
1956.....	158,568,356	137,696,621	127,421,739	+10,274,882
1957.....	167,879,889	145,823,785	139,992,921	+5,830,864
1958.....	177,492,783	152,919,881	153,319,782	—399,901
1959.....	183,380,508	157,630,336	167,803,478	—173,142
1960.....	193,659,715 ^c	167,629,053 ^c	165,792,339	+1,836,714 ^c
1961.....	202,003,790	173,645,658	178,371,716	—4,726,058

¹ Gross revenue less commissions and allowances to postmasters, and other small items.
of semi-staff and staff post offices.

² Excludes rental

The gross revenue receipts shown in Table 16 are received mainly from postage, either in the form of postage stamps and stamped stationery, or postage meter and postage register machine impressions. Some postage is also paid in cash without stamps, stamped stationery or meter and register impressions. The gross value of the postage stamps and stamped stationery sold during each of the latest five fiscal years was: \$77,735,639 in 1956-57, \$81,192,007 in 1957-58, \$82,003,654 in 1958-59, \$83,961,344 in 1959-60 and \$85,807,987 in 1960-61. Receipts from postage meter or postage register impressions and postage paid in cash by other means were as follows: \$78,041,479 in 1956-57, \$83,706,744 in 1957-58, \$87,920,080 in 1958-59, \$95,943,284 in 1959-60 and \$101,414,855 in 1960-61.

Auxiliary Postal Services.—Auxiliary postal services include the issuing of money orders and the operation of the Post Office Savings Bank.

Table 17 shows the amount of money order business conducted by the postal service in recent years. A table showing the financial business of the Post Office Savings Bank will be found in Chapter XXIII on Currency and Banking.

17.—Operations of the Money Order System, Years Ended Mar. 31, 1957-61

Year	Money Order Offices in Canada	Money Orders Issued in Canada	Value of Orders Issued in Canada	Value Payable in—		Value of Orders Issued in Other Countries, Payable in Canada
				Canada	Other Countries	
	No.	No.	\$	\$	\$	\$
1957.....	11,022	51,182,296	799,615,004	772,708,244	26,906,761	5,033,806
1958.....	10,934	52,898,954	845,647,439	818,333,292	27,314,147	5,394,568
1959.....	10,823	53,746,050	853,443,891	825,973,053	27,470,837	5,026,970
1960.....	10,778	54,953,087	868,669,133	840,584,556	28,084,576	5,250,922
1961.....	11,098	55,939,421	886,976,976	858,278,412	28,698,563	5,505,224

Section 3.—The Press

An article in the 1957-58 Year Book traces developments in Canadian journalism from their beginnings in 1752 to (circa) 1900. A second article appearing in the 1959 edition brings that account up to the date of writing (1958). The complete presentation is available in reprint form from the Dominion Bureau of Statistics.

Daily newspapers published in Canada numbered 109 in 1961, counting morning and evening editions separately. English and French dailies had an aggregate reported circulation of more than 4,000,000—about 82 p.c. in English and 18 p.c. in French. Twelve of those with circulations in excess of 100,000 accounted for over 53 p.c. of the circulation. French dailies, as would be expected, have their widest circulation in Quebec where 10 of the 12 in existence in 1961 were published. Some of the largest of these papers have been established in that province for over 60 years. Weekly newspapers serve more people in rural communities than do the dailies. They cater to local interests and exercise an important influence in the areas they serve.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 100 members with world and Canadian news and news photographs, mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides its fellow members with the news of its particular area

and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the population of the cities in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The British United Press is a limited company in Canada and maintains a close association with the United Press International, of which it is an affiliate. From its headquarters in Montreal and its 12 Canadian bureaus, it serves directly (1961) North America, South America, Europe and Australia with news from Canada, as well as 185 subscribers including 59 private broadcasting stations in Canada. Agence France Presse maintains offices in Montreal and Ottawa and certain foreign newspapers have agencies in Ottawa to interpret Canadian news for their readers.

Press Statistics.—The following tables are based on data estimated from *Canadian Advertising* and include English and French newspapers only. No information is available regarding foreign-language newspapers for 1960 or 1961; numbers and circulations for 1958 and 1959 are given in the 1960 Year Book at p. 919 and figures back to 1945 in previous editions beginning with the 1947 edition.

One serious difficulty has been encountered in connection with the compilation of newspaper circulation figures. Reliable circulation figures are relatively easy to obtain for daily newspapers because, in their own best interest, such papers qualify for and subscribe to the Audit Bureau of Circulation requirements; for these, A.B.C. 'net paid' figures have been used. However, it is difficult to obtain reliable circulation figures for many weekly newspapers and those shown in the following tables should be used with reservations. No figures are available for magazines.

18.—Estimated Numbers and Circulations¹ of reporting English-Language Newspapers, by Province, 1960 and 1961

Province or Territory	1960						1961					
	Daily		Weekly ²		Week-end		Daily		Weekly ²		Week-end	
	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation
Nfld.....	3	26,819	4	12,285	1	19,677	3	27,366	4	12,285	1	17,226
P.E.I.....	3	24,870	—	—	—	—	3	26,275	—	—	—	—
N.S.....	6	150,364	30	100,779	—	—	6	151,958	28	88,654	—	—
N.B.....	5	84,409	14	46,171	—	—	5	86,470	14	48,017	—	—
Que.....	4	318,998	26	117,153	1	1,628,898	4	326,011	23	100,194	1	1,669,514
Ont.....	47	1,650,811	245	661,235	4	1,432,288	46	1,697,024	241	660,306	3	1,148,483
Man.....	6	216,203	68	109,462	—	—	6	208,820	66	110,260	—	—
Sask.....	4	109,130	153	167,567	—	—	4	107,639	154	210,653	—	—
Alta.....	6	252,756	103	179,422	—	—	6	258,754	107	188,206	—	—
B.C.....	14	434,065	87	221,783	—	—	14	439,445	87	249,446	—	—
Y. T. and N.W.T....	—	—	2	4,500	—	—	—	—	3	6,575	—	—
Canada...	98	3,268,425	732	1,620,357	6	3,080,863	97	3,329,762	727	1,674,596	5	2,835,223

¹ Circulation not reported for all newspapers.

² Includes semi-weeklies and tri-weeklies.

19.—Estimated Numbers and Circulations¹ of reporting French-Language Newspapers, by Province, 1960 and 1961

Province	1960						1961					
	Daily		Weekly ²		Week-end		Daily		Weekly ²		Week-end	
	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation
N.S.....	—	—	1	1,820	—	—	—	—	1	1,042	—	—
N.B.....	1	10,808	2	8,450	—	—	1	10,951	2	8,344	—	—
Que.....	10	664,845	149	1,110,151	13	1,465,905	10	689,525	157	1,089,908	13	1,797,171
Ont.....	1	34,529	6	18,102	—	—	1	34,223	5	17,408	—	—
Man.....	—	—	1	8,382	—	—	—	—	1	8,459	—	—
Sask.....	—	—	2	2,376	—	—	—	—	3	3,137	—	—
Alta.....	—	—	1	2,450	—	—	—	—	1	2,570	—	—
Totals...	12	710,182	162	1,151,731	13	1,465,905	12	734,699	170	1,131,768	13	1,797,171

¹ Circulation not reported for all newspapers.

² Includes semi-weeklies, tri-weeklies and bilinguals.

20.—Estimated Numbers and Circulations of reporting Daily and Weekly English-Language Newspapers Published in Urban Centres of 30,000 Population or Over, 1960 and 1961

NOTE.—Figures from 1945 will be found in the corresponding table of previous Year Books beginning with the 1947 edition.

Urban Centre	1960				1961			
	Daily		Weekly		Daily		Weekly	
	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation
Belleville, Ont.....	1	12,584	—	—	1	12,350	—	—
Brantford, Ont.....	1	21,214	—	—	1	21,313	—	—
Burlington, Ont.....	—	—	1	6,200	—	—	1	6,561
Calgary, Alta.....	2	111,429	1	16,500	2	116,711	2	21,105
Cornwall, Ont.....	1	13,997	—	—	1	13,022	—	—
Dartmouth, N.S.....	—	—	—	7,190	—	—	1	7,267
Edmonton, Alta.....	1	110,238	2	14,103	1	111,602	1	5,116
Fort William, Ont.....	1	15,709	—	—	1	15,517	—	—
Granby, Que.....	—	—	1	3,034	—	—	1	3,034
Guelph, Ont.....	2	16,973	—	—	2	17,401	—	—
Halifax, N.S.....	2	108,259	1	6,450	2	109,743	—	—
Hamilton, Ont.....	1	105,082	—	—	1	106,096	1	12,000
Kingston, Ont.....	1	21,391	—	—	1	21,784	—	—
Kitchener, Ont.....	1	35,936	—	—	1	36,531	—	—
Lethbridge, Alta.....	1	18,087	—	—	1	17,619	—	—
London, Ont.....	2	105,439	—	—	2	108,195	—	—
Moncton, N.B.....	2	25,782	—	—	2	26,506	—	—
Montreal, Que.....	2	304,559	3	1,651,781 ¹	2	311,123	2	1,680,715 ¹
Moose Jaw, Sask.....	1	8,086	1	—	1	8,373	1	—
New Westminster, B.C.....	1	17,485	—	—	1	17,777	—	—
Oshawa, Ont.....	1	16,603	—	—	1	16,377	—	—
Ottawa, Ont.....	2	139,474	4	19,900	2	142,025	3	12,900
Peterborough, Ont.....	1	23,029	1	6,008	1	22,429	1	6,345
Port Arthur, Ont.....	1	14,325	—	—	1	14,862	—	—
Quebec, Que.....	1	5,597	—	—	1	5,786	—	—
Regina, Sask.....	1	52,631	1	6,000	1	51,480	1	34,000
St. Catharines, Ont.....	1	27,976	—	—	1	26,962	—	—
St. James, Man.....	—	—	1	4,002	—	—	1	3,408
St. John's, Nfld.....	2	21,281	2	24,127 ²	2	21,537	2	21,676 ²

For footnotes, see end of table, p. 866.

20.—Estimated Numbers and Circulations of reporting Daily and Weekly English-Language Newspapers Published in Urban Centres of 30,000 Population or Over, 1960 and 1961—conc.

Urban Centre	1960				1961			
	Daily		Weekly		Daily		Weekly	
	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation
Saint John, N.B.	2	44,876	1	6,041	2	46,378	1	6,650
St. Laurent, Que.	—	—	1	17,325	—	—	1	17,560
Sarnia, Ont.	1	15,525	1	15,000	1	15,538	1	14,000
Saskatoon, Sask.	1	41,476	—	—	1	40,804	—	—
Sault Ste. Marie, Ont.	1	16,361	—	—	1	16,795	—	—
Shawinigan, Que.	—	—	1	3,524	—	—	1	3,160
Sherbrooke, Que.	—	8,842	1	3,400	1	9,102	1	4,997
Sudbury, Ont.	1	28,910	—	—	1	29,655	—	—
Sydney, N.S.	1	26,009	—	—	1	26,195	—	—
Toronto, Ont.	4	770,546	10	1,501,628 ^a	4	806,883	10	1,227,055 ^a
Trois Rivières, Que.	—	—	1	4,168	—	—	1	4,300
Vancouver, B.C.	2	318,139	7	40,778	2	318,316	8	68,043
Victoria, B.C.	2	52,814	1	1,803	2	54,441	1	1,838
Welland, Ont.	1	16,048	—	—	1	16,318	—	—
Windsor, Ont.	1	77,445	—	—	1	77,934	—	—
Winnipeg, Man.	2	200,474	2	14,834 ^a	2	192,906	3	23,544 ^a

¹ Includes one week-end newspaper circulated with daily newspapers in other cities.

² Includes one week-end newspaper.

³ Includes four week-end newspapers.

⁴ Includes three week-end newspapers.

^a Circulation for one weekly only.

^b Circulation for two weeklies only.

21.—Estimated Numbers and Circulations of reporting Daily and Weekly French-Language Newspapers Published in Urban Centres of 30,000 Population or Over, 1960 and 1961

NOTE.—Figures from 1945 will be found in the corresponding table of previous Year Books beginning with the 1947 edition.

Urban Centre	1960				1961			
	Daily		Weekly		Daily		Weekly	
	No.	Circulation	No.	Circulation	No.	Circulation	No.	Circulation
Chicoutimi, Que.	—	—	1	3,379	—	—	2	12,441
Cornwall, Ont.	—	—	1	6,000	—	—	1	6,000
Edmonton, Alta.	—	—	1	2,450	—	—	1	2,570
Granby, Que.	1	10,655	1	4,478	1	10,864	1	4,478
Hull, Que.	—	—	2 ¹	4,000	—	—	3	94,923 ²
Lachine, Que.	—	—	1	15,600 ³	—	—	1	15,600 ³
LaSalle, Que.	—	—	1	12,000 ³	—	—	1	12,000 ³
Moncton, N.B.	1	10,808	—	—	1	10,951	—	—
Montreal, Que.	3	387,230	24	1,901,272 ⁴	4	417,292 ⁵	23	1,870,827 ⁶
Ottawa, Ont.	1	34,529	—	—	1	34,223	—	—
Quebec, Que.	3	193,416	17 ⁷	—	3	187,528	2	181,048 ⁸
St. Boniface, Man.	—	—	1	8,382	—	—	1	8,459
St. Laurent, Que.	—	—	2	10,980 ⁹	—	—	2	11,250 ⁹
Shawinigan, Que.	—	—	4	17,487 ¹⁰	—	—	4	22,898
Sherbrooke, Que.	1	34,556	1	38,170	1	38,327	1	38,170
Sudbury, Ont.	—	—	1	1,989	—	—	1	1,989
Trois Rivières, Que.	1	34,220	3	7,936 ¹¹	1	35,514	3	7,936 ¹¹
Verdun, Que.	—	—	1	8,955 ¹²	—	—	1	7,876 ¹³

¹ Includes one week-end newspaper which is circulated with newspapers in other cities (circulation not available).

² Includes one week-end newspaper which is circulated with newspapers in other cities.

³ Bilingual.

⁴ Includes 9 bilinguals and 11 week-end newspapers including one which is circulated with dailies in other cities.

⁵ Circulation for 3 dailies only.

⁶ Includes 11 bilinguals and 11 week-end newspapers including one which is circulated with dailies in other cities.

⁷ Week-end newspaper.

⁸ Includes one week-end newspaper.

⁹ Includes one bilingual.

¹⁰ Circulation for 3 weeklies only.

¹¹ Circulation for 2 weeklies only.

CHAPTER XIX.—DOMESTIC TRADE AND PRICES

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

PART I.—THE MOVEMENT AND MARKETING OF COMMODITIES

Domestic trade is broad and complicated; it encompasses all values added to commodities traded, provincially and interprovincially, by agencies and services connected with the storage, distribution and sale of goods, such as railways, steamships, warehouses, wholesale and retail stores, financial institutions, etc. Taken in a wide sense, it embraces various professional and personal services including amusement services, such as theatres and sports. Only certain phases of this broad field are covered here and, wherever possible, cross references are given to related material appearing in other Chapters. The arrangement of material in a volume such as the Year Book is governed by the necessity of interpretation from various angles. The index will be found useful in this respect.

Section 1.—Merchandising and Service Establishments*

The next census of merchandising and service establishments will be for the year 1961. The first census of this kind in Canada related to business transacted for the year 1930 and similar censuses were taken for 1941 and 1951. It is worth noting now that the scope of the data being collected for 1961 has been widened. Gross margin information will be collected from retail stores and wholesalers. Operating expense figures will be collected from wholesalers and service businesses and more information will be sought about the operating characteristics of retailers and wholesalers.

The results of the 1930 and 1941 Censuses of Merchandising and Service Establishments are contained in Vols. X and XI of the Census reports for those years and the results of the 1951 Census of Distribution in Vols. VII and VIII of the 1951 Census reports. Summary data for 1951 are given in the 1955 Year Book, pp. 953-977. The results of the 1961 Census will be available about mid-1963.

Census information is supplemented in intercensal years by monthly, quarterly and annual surveys on the more important phases of the retail, wholesale and service trades—sample surveys for some businesses and full coverage for others. The 1951 Census formed a new base for such surveys and certain improvements have been implemented for continuance during the 1951-61 intercensal period. Current information available on the distributive trades is given in the following Subsections. Estimates for the years prior to 1951 have been revised in accordance with the census base.

Subsection 1.—Wholesale Trade

Wholesale Sales and Inventories.—Estimated sales of wholesalers expanded from \$5,784,400,000 in 1951 to \$8,764,500,000 in 1960, and estimated inventories increased from \$682,500,000 in 1951 to \$1,047,400,000 in 1959 (inventory data result from a special survey made for the years 1958 and 1959). These figures, given respectively in Table 1 for 1956-60 and Table 2 for 1958 and 1959, include only wholesalers proper, i.e., they exclude agents and brokers and manufacturers' sales branches. Sales estimates have been revised but have not been adjusted for price changes. Table 3 shows the business of agents and brokers for the years 1957-59; such sales increased from \$2,493,563,000 in 1951 to \$3,187,206,300 in 1959.

* Prepared in the Merchandising and Services Section of the Industry and Merchandising Division, Dominion Bureau of Statistics.

1.—Wholesale Sales, by Kind of Business, 1956-60

NOTE.—Includes only wholesalers proper, i.e., firms performing the function of buying merchandise on their own account for resale.

Kind of Business	1956	1957	1958	1959	1960
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	237.7	237.2	263.5	279.5	288.4
Groceries and food specialties.....	1,157.7	1,263.8	1,385.1	1,544.5	1,649.7
Meat and dairy products.....	146.4	152.0	175.0	171.3	165.0
Clothing and furnishings.....	114.0	116.9	123.6	120.0	116.1
Footwear.....	31.4	30.9	33.5	37.1	38.0
Other textile and clothing accessories.....	187.3	186.3	198.2	211.5	204.6
Drugs and drug sundries.....	174.4	184.7	198.5	216.6	221.9
Household electrical appliances.....	164.5	161.3	166.4	181.4	182.7
Farm machinery.....	68.6	56.1	68.5	84.9	73.0
Coal and coke.....	188.5	183.0	163.6	155.9	153.3
Hardware.....	319.7	315.2	308.8	317.6	327.1
Construction materials and supplies including lumber.....	799.3	779.6	825.2	964.4	877.6
Industrial and transportation equipment and supplies.....	804.7	796.4	709.0	779.7	748.1
Commercial, institutional and service equipment and supplies.....	104.9	105.1	109.3	130.2	137.4
Automotive parts and accessories.....	338.0	342.1	363.9	407.9	414.8
Newsprint, paper and paper products.....	253.3	251.8	241.9	262.8	276.4
Tobacco, confectionery and soft drinks.....	585.0	635.8	679.2	723.4	741.1
Other.....	1,996.7	1,893.3	1,892.5	2,163.9	2,149.3
Totals, All Trades.....	7,672.1	7,691.5	7,905.7	8,752.6	8,764.5

2.—Wholesale Inventories, by Kind of Business, 1958 and 1959

NOTE.—Includes only wholesalers proper, i.e., firms performing the function of buying merchandise on their own account for resale.

Kind of Business	1958	1959	Kind of Business	1958	1959
	\$'000,000	\$'000,000		\$'000,000	\$'000,000
Fresh fruits and vegetables.....	5.7	5.0	Industrial and transportation equip-		
Groceries and food specialties.....	108.8	105.9	ment and supplies.....	156.9	180.4
Meat and dairy products.....	7.9	5.9	Commercial, institutional and service		
Clothing and furnishings.....	20.4	21.3	equipment and supplies.....	21.4	24.6
Footwear.....	7.1	8.4	Automotive parts and accessories...	59.3	74.7
Other textile and clothing accessories.	35.2	34.8	Newsprint, paper and paper products..	19.2	18.8
Drugs and drug sundries.....	24.8	26.4	Tobacco, confectionery and soft drinks	29.0	31.8
Household electrical appliances.....	29.4	33.1	Other.....	225.5	263.3
Farm machinery.....	17.0	20.9			
Coal and coke.....	17.2	15.4			
Hardware.....	69.4	70.8			
Construction materials and supplies,			Totals, All Trades.....	946.6	1,047.4
including lumber.....	92.4	105.9			

3.—Sales of Agents and Brokers, by Kind of Business, 1957-59

NOTE.—Includes those businesses primarily handling merchandise on a commission basis at the wholesale level.

Kind of Business	1957	1958	1959
	\$'000,000	\$'000,000	\$'000,000
Amusement, sporting and photographic goods.....	20.4	20.3	22.3
Automotive.....	38.9	39.5	40.5
Beer, wine and distilled spirits.....	15.2	14.9	15.1
Chemicals, drugs and allied products.....	46.9	48.3	48.4
Coal and coke.....	12.4	8.7	8.4
Dry goods and apparel.....	306.5	312.7	360.0
Electrical goods.....	69.3	73.0	81.2
Farm products (raw materials).....	940.5	1,038.8	1,065.0
Farm supplies.....	19.4	21.9	30.2
Food products (except groceries) and tobacco...	355.5	356.5	381.5
Forest products (except lumber).....	57.1	39.0	44.1
Furniture and house furnishings.....	49.0	51.9	52.9
General merchandise.....	23.2	26.1	27.3
Groceries and food specialties.....	235.2	233.7	240.6
Hardware.....	42.4	42.9	45.9
Jewellery.....	4.7	4.8	4.2
Leather and leather goods.....	12.8	14.1	17.1
Lumber and building materials (other than metal)...	78.7	86.1	102.1
Machinery, equipment and supplies.....	119.7	116.8	136.4
Metals and metal work.....	138.6	158.3	196.7
Paper and paper products.....	148.2	152.4	155.7
Petroleum and petroleum products.....	27.3	21.7	19.9
Plumbing and heating equipment and supplies.....	22.3	20.5	21.5
Waste materials (including scrap metal).....	10.3	9.1	10.1
Other kinds of business.....	40.2	33.1	33.7
Unable to classify.....	25.7	27.1	26.4
Totals, All Trades.....	2,860.4	2,972.2	3,187.2

Subsection 2.—Retail Trade

The trend of retail trade is one of the best general indicators of the economic condition of the country. It is through retail stores that most goods are ultimately sold and such sales reflect the financial strength of the consumer except in times of short supply. The estimated value of retail sales increased by 61.3 p.c. during the period 1949-61. Estimates, not adjusted for price changes, are shown by province in Table 4 for 1930 and 1941-61 and by kind of business for the latest five years in Table 5.

4.—Retail Trade, by Province, 1930 and 1941-61

NOTE.—Figures for 1931-40 are given in the 1957-58 Year Book, p. 938.

Year	Atlantic Provinces ¹	Quebec	Ontario	Manitoba	Saskatch- ewan	Alberta	British Columbia ²	Canada ³
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1930.....	197	646	1,091	188	188	175	251	2,736
1941.....	279	820	1,388	193	189	228	318	3,415
1942.....	301	876	1,447	206	201	243	346	3,619
1943.....	319	913	1,488	220	219	266	362	3,786
1944.....	351	976	1,574	243	249	296	404	4,093
1945.....	387	1,081	1,774	269	279	329	455	4,573
1946.....	491	1,342	2,265	338	341	416	593	5,787
1947.....	564	1,621	2,721	407	410	504	737	6,963
1948.....	607	1,792	3,067	466	473	611	818	7,835
1949.....	734	1,872	3,294	523	538	697	874	8,532
1950.....	822	2,183	3,715	567	571	777	982	9,617
1951.....	899	2,443	4,130	610	659	854	1,100	10,693
1952.....	982	2,635	4,383	651	764	939	1,177	11,532
1953.....	1,018	2,756	4,616	677	845	987	1,228	12,128
1954.....	1,025	2,798	4,634	637	758	964	1,249	12,066
1955.....	1,127	3,006	5,115	669	748	1,035	1,412	13,112
1956.....	1,211	3,322	5,499	700	812	1,159	1,594	14,298
1957.....	1,234	3,521	5,663	726	855	1,211	1,616	14,826
1958.....	1,290	3,647	5,934	754	914	1,275	1,631	15,444
1959.....	1,362	3,878	6,218	813	951	1,355	1,707	16,284
1960.....	1,430	3,944	6,313	843	938	1,366	1,665	16,502
1961 ^p	1,450	4,109	6,337	818	901	1,385	1,664	16,664

¹ Newfoundland included from 1949.² Includes the Yukon and Northwest Territories.³ Totals

are not the exact addition of the components because of rounding of the figures.

5.—Retail Trade, by Kind of Business, 1957-61

Kind of Business	1957	1958	1959	1960	1961 ^p
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Grocery and combination stores.....	2,894	3,126	3,287	3,474	3,571
Other food and beverage stores.....	1,082	1,120	1,178	1,225	1,235
General stores.....	596	625	630	640	655
Department stores.....	1,282	1,345	1,420	1,454	1,500
Variety stores.....	296	315	331	350	368
Motor vehicle dealers.....	2,483	2,414	2,613	2,551	2,519
Garages and filling stations.....	839	1,037	1,104	1,145	1,153
Men's clothing stores.....	235	238	250	259	260
Family clothing stores.....	218	227	226	235	242
Women's clothing stores.....	257	265	273	277	277
Shoe stores.....	136	146	155	169	167
Hardware stores.....	302	318	326	328	328
Lumber and building material dealers.....	458	482	492	436	433
Furniture, appliance and radio dealers.....	567	566	581	547	556
Restaurants.....	528	543	567	569	557
Fuel dealers.....	322	326	342	324	324
Drug stores.....	358	383	405	416	410
Jewellery stores.....	131	133	137	134	136
Miscellaneous.....	1,743	1,838	1,967	1,971	1,964
Totals, All Trades.....	14,826	15,444	16,284	16,502	16,664

Retail Chain Stores.—Retail chains are defined as companies operating four or more retail outlets in the same or related kinds of business. A consistent rise in sales has been evident since statistics were first compiled on chain store operations in 1930.

6.—Retail Chain Store Statistics, 1930 and 1941-60

Year	Stores	Net Retail Sales	Salaries and Wages Paid to Store Employees	Value of Stocks on Hand End of Year		Accounts Outstanding End of Year
				Stores	Warehouses	
	Av. No.	\$'000	\$'000	\$'000	\$'000	\$'000
1930.....	8,097	487,336	50,405	60,457	..	..
1941.....	7,622	639,210	57,777	68,619	20,976	38,376
1942.....	7,010	687,447	57,654	66,940	22,633	..
1943.....	6,780	703,950	58,804	67,628	22,602	15,527
1944.....	6,560	769,643	63,300	66,944	21,855	15,093
1945.....	6,580	876,209	68,196	68,247	29,013	16,368
1946.....	6,559	1,014,847	77,474	85,345	37,436	19,643
1947.....	6,716	1,177,323	91,266	105,040	43,546	31,492
1948.....	6,821	1,335,735	107,450	119,132	46,330	40,378
1949.....	6,839	1,420,081	115,903	123,696	46,755	50,001
1950.....	7,165	1,559,693	129,334	159,083	60,501	65,000
1951.....	7,846	1,775,744	153,599	186,562	60,490	53,816
1952.....	7,766	1,924,873	154,462	172,886	55,215	77,475
1953.....	7,835	2,048,228	171,167	179,704	52,096	91,538
1954.....	8,136	2,146,635	181,509	191,049	57,814	102,747
1955.....	8,274	2,353,955	199,611	205,833	63,120	127,362
1956.....	8,559	2,647,055	221,136	232,392	72,183	143,357
1957.....	8,822	2,841,569	242,979	248,284	78,521	148,506
1958.....	9,122	3,073,147	262,456	265,862	78,512	158,232
1959.....	9,491	3,280,263	285,691	282,530	80,440	162,453
1960.....	9,954	3,468,413	382,099	304,230	94,528	175,048

7.—Retail Chain Store Sales, by Province and by Kind of Business, 1956-60

Province or Kind of Business	1956	1957	1958	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000
Province					
Newfoundland.....	15,267	24,079	23,849	35,708	37,130
Maritime Provinces.....	169,946	179,396	190,928	198,095	217,968
Quebec.....	540,628	576,716	619,584	674,002	712,556
Ontario.....	1,230,388	1,335,056	1,451,325	1,508,626	1,579,018
Manitoba.....	100,591	112,126	120,715	131,908	142,482
Saskatchewan.....	111,353	118,935	128,762	137,037	140,077
Alberta.....	182,111	197,763	219,751	245,747	262,954
British Columbia.....	289,846	289,463	309,336	341,548	367,796
Yukon and Northwest Territories.....	6,925	8,034	8,897	7,592	8,422
Canada.....	2,647,055	2,841,569	3,073,147	3,280,263	3,468,413
Kind of Business					
Foods and Beverages¹.....	1,685,394	1,835,648	1,994,366	2,143,559	2,293,563
Grocery and combination stores.....	1,096,330	1,241,725	1,368,883	1,481,136	1,602,797
Meat markets.....	7,730	7,563	7,924	8,177	9,607
Restaurants.....	36,374	36,194	38,236	40,718	40,600
Alcoholic beverage stores.....	527,952	530,143	556,383	587,817	611,646
General Merchandise (excl. department stores)¹.....	313,976	338,645	357,199	379,638	413,209
General stores.....	41,144	42,774	42,513	44,290	48,820
Variety stores.....	229,307	247,223	264,298	282,591	298,157
Automotive.....	42,043	48,299	56,022	62,068	60,756
Apparel and Accessories¹.....	190,674	202,078	222,490	238,448	261,583
Men's and boys' clothing and furnishings.....	28,866	28,159	29,167	30,148	28,529
Women's clothing stores.....	67,269	70,707	78,147	81,357	84,269
Family clothing stores.....	36,347	40,459	44,958	50,373	65,291
Shoe stores.....	53,433	57,822	63,938	70,160	76,514
Building Materials and Hardware.....	141,316	140,534	151,151	155,923	148,324
Furniture and Household Appliances.....	137,059	130,727	133,301	132,083	117,871
Other Retail Stores¹.....	136,592	145,638	155,618	168,544	173,107
Drug stores.....	41,299	45,437	49,912	53,383	55,130
Jewellery stores.....	46,301	45,205	47,017	48,736	49,280

¹ Includes other kinds of business not shown separately.

Operating Results of Retail Chain Stores.—A survey of the operating results of retail chain stores is carried out every second year. Results of the 1959 survey are given in Table 8.

8.—Operating Results of Retail Chain Stores for Selected Kinds of Business, 1959

(Percentage of net sales)

Kind of Business	Gross Profit	Salaries and Wages	Occupancy Expenses ¹	Total Operating Expenses ²	Net Operating Profit	Net Non-trading Income	Net Profit before Income Tax
Grocery.....	16.49	9.17	2.07	15.28	1.21	0.22	1.43
Combination grocery and meat.....	17.90	7.88	2.14	15.17	2.73	0.30	3.03
Meat.....	..	..	..	..	..	..	..
Men's clothing.....	35.65	15.87	5.86	33.92	1.73	0.86	2.59
Women's clothing.....	34.61	15.11	7.33	31.58	3.03	1.13	4.16
Family clothing.....	32.58	15.36	4.45	29.27	3.31	0.32	3.63
Shoe.....	35.94	15.80	7.14	30.19	5.75	0.31 ³	5.44
Variety.....	38.66	18.10	5.09	29.93	8.73	0.69	9.42
Drug.....	33.92	18.51	5.34	31.56	2.36	1.22	3.58
Furniture.....	36.13	16.78	4.99	41.24	5.11 ⁴	12.19	8.08

¹ Includes taxes and insurance, light, heat and power, repairs, maintenance, depreciation (except on delivery equipment) and rentals on rented premises. ² Includes salaries and wages and occupancy expenses. ³ Net non-trading expense. ⁴ Net operating loss.

Operating Results of Independent Retail Stores.—The trades included in the independent retail store classification are divided into two groups, which are surveyed in alternate years. Operating ratios given in Table 9 are therefore for 1959 or 1960 as indicated.

9.—Operating Ratios of Independent Retail Stores, by Kind of Business, 1959 or 1960

(Percentage of net sales)

Kind of Business	Cost of Goods Sold	Gross Profit	Salaries and Wages ¹	Occupancy Expenses ²	Total Operating Expenses ³	Net Profit before Income Tax ⁴
1959						
Unincorporated						
Drug.....	68.4	31.6	8.8	5.4	13.9	12.6
Filling station.....	77.7	22.3	7.2	5.0	14.7	8.0
Garage.....	66.8	33.2	12.4	6.1	22.6	11.2
Fuel.....	77.6	22.4	5.4	2.6	16.8	6.2
Hardware.....	73.0	27.0	7.6	5.1	17.7	10.4
Furniture.....	72.8	27.2	6.1	5.5	18.8	9.0
Appliance and radio.....	70.3	29.7	9.7	5.3	22.6	8.5
Jewellery.....	58.0	42.0	10.1	8.7	26.3	16.6
Restaurant.....	59.8	40.2	16.9	11.2	32.4	8.4
Incorporated						
Drug.....	67.0	33.0	19.0	5.6	29.0	3.8
Jewellery.....	62.2	37.8	19.5	7.5	35.9	2.8
Fuel.....	76.4	23.6	8.4	2.6	20.7	3.5
Hardware.....	72.1	27.9	16.6	4.7	26.9	1.8
Furniture.....	73.7	26.3	13.3	5.4	27.1	1.1
Appliance and radio.....	74.7	25.3	13.2	3.7	24.3	2.0

For footnotes, see end of table.

**9.—Operating Ratios of Independent Retail Stores, by Kind of Business
1959 or 1960—concluded**

Kind of Business	Cost of Goods Sold	Gross Profit	Salaries and Wages ¹	Occupancy Expenses ²	Total Operating Expenses ³	Net Profit before Income Tax ⁴
1960						
Unincorporated						
Grocery.....	84.6	15.4	2.4	4.0	9.2	6.8
Combination.....	84.6	15.4	4.3	3.3	10.9	4.9
Meat.....	79.8	20.2	5.8	3.6	13.7	7.0
Confectionery.....	80.1	19.9	3.1	6.1	11.5	9.6
Fruits and vegetables.....	80.3	19.7	4.5	5.0	12.9	7.3
Men's clothing.....	71.2	28.8	6.8	6.7	19.4	10.0
Family clothing.....	73.4	26.6	7.0	6.0	18.0	9.3
Women's clothing.....	70.1	29.9	8.5	7.6	21.8	8.7
Family shoe.....	70.0	30.0	7.7	6.5	19.1	11.8
General stores.....	84.6	15.4	3.1	3.4	9.4	6.6
Incorporated						
Men's clothing.....	68.5	* 31.5	16.1	6.3	30.0	2.0
Family clothing.....	69.5	30.5	15.9	4.8	28.4	3.5
Women's clothing.....	67.5	32.5	16.8	7.2	30.6	2.9
Family shoe.....	65.9	34.1	19.1	6.1	31.1	3.1

¹ Excludes delivery and, for unincorporated stores, also excludes proprietors' salaries.

² Includes taxes and insurance, light, heat and power, repairs, maintenance, depreciation (except on delivery equipment) and rentals on rented premises.

³ Includes salaries and wages and occupancy expenses.

⁴ Includes net non-trading income and, for unincorporated stores, proprietors' salaries or withdrawals.

New Motor Vehicle Sales.—Sales of new motor vehicles reached a peak in 1960 when 523,188 vehicles valued at \$1,574,827,000 were sold. Preliminary figures for 1961 indicate a drop of 2.5 p.c. in number of vehicles sold and of 1.7 p.c. in value compared with 1960.

10.—Retail Sales of New Motor Vehicles, 1952-61

Year	Passenger Cars		Trucks and Buses		Totals	
	No.	\$	No.	\$	No.	\$
1952.....	292,095	725,168,000	108,682	278,495,000	400,777	1,003,663,000
1953.....	359,172	899,726,000	103,354	262,745,000	462,526	1,162,471,000
1954.....	310,546	797,554,000	72,082	191,964,000	382,628	989,518,000
1955.....	386,962	1,023,351,000	78,716	232,539,000	465,678	1,255,890,000
1956.....	408,233	1,128,640,000	91,688	326,735,000	499,921	1,455,375,000
1957.....	382,023	1,087,620,000	76,276	281,311,000	458,299	1,368,931,000
1958.....	376,723	1,110,724,000	68,046	254,742,000	444,769	1,365,466,000
1959.....	425,038	1,240,961,000	77,588	299,207,000	502,626	1,540,168,000
1960.....	447,771	1,289,073,000	75,417	285,754,000	523,188	1,574,827,000
1961 ^a	435,987	1,286,888,000	74,160	261,365,000	510,147	1,548,253,000

Farm Implement Sales.—Sales of new farm machinery also reached a peak in 1960 when they amounted to \$217,465,000, a figure 2.5 p.c. above the 1959 total. Increases reported by the Atlantic Provinces, Manitoba and Saskatchewan more than counter-balanced decreased sales in the other provinces.

In addition to the amount spent on new machinery, \$41,312,625 was spent in 1960 for repair parts, which was 6.2 p.c. more than the amount so spent in 1959.

11.—Sales of Farm Implements and Equipment, by Major Group, 1956-60

(Values at wholesale prices)

Major Group	1956	1957	1958	1959	1960	Percentage Change 1959-60
	\$'000	\$'000	\$'000	\$'000	\$'000	
Tractors and engines.....	63,262	56,651	63,171	78,938	80,093	+ 1.5
Ploughs.....	8,019	8,952	9,790	11,189	11,635	+ 4.0
Tilling, cultivating and weeding machinery.....	7,071	7,845	9,656	11,920	12,650	+ 6.1
Planting, seeding and fertilizing machinery.....	6,094	6,703	7,104	7,894	7,873	- 0.3
Haying machinery.....	27,245	23,566	26,257	30,655	30,544	- 0.4
Harvesting machinery.....	34,753	23,984	29,851	44,122	46,485	+ 5.4
Machines for preparing crops for market or for use.	4,768	5,556	6,102	7,510	6,261	-16.6
Farm wagons, wagon trucks and sleighs.....	1,805	1,527	1,900	1,994	2,025	+ 1.6
Barn equipment.....	2,637	2,863	3,521	3,869	4,095	+ 5.8
Dairy machinery and equipment.....	4,787	5,468	6,488	5,139	5,766	+12.2
Spraying and dusting equipment.....	1,770	1,269	1,558	1,466	1,637	+11.6
Miscellaneous farm equipment.....	8,556	5,518	6,616	7,535	8,401	+11.5
Totals.....	170,767	149,902	172,014	212,231	217,465	+ 2.5

12.—Sales of Farm Implements and Equipment, by Province, 1959 and 1960

(Values at wholesale prices)

Province or Region	1959		1960		Percentage Change 1959-60
	Amount	P.C. of Total	Amount	P.C. of Total	
	\$		\$		
Atlantic Provinces.....	6,482,227	3.1	7,692,658	3.5	+18.7
Quebec.....	27,030,562	12.7	26,792,294	12.3	- 0.9
Ontario.....	50,592,586	23.8	49,399,102	22.7	- 2.4
Manitoba.....	24,081,680	11.4	25,876,486	12.0	+ 6.2
Saskatchewan.....	50,520,529	23.8	57,359,238	26.4	+13.5
Alberta.....	47,934,063	22.6	44,993,316	20.7	- 6.1
British Columbia.....	5,589,732	2.6	5,352,089	2.4	- 4.3
Totals.....	212,231,379	100.0	217,465,183	100.0	+ 2.5

Sales Financing.—The amount of instalment financing transacted by sales finance companies in 1960 was slightly lower than the high point reached in 1959, but the balance outstanding at the end of the year was somewhat higher.

13.—Retail Instalment Paper Purchased and Balances Outstanding, by Class of Goods, 1957-60

(Millions of dollars)

Class of Goods	Paper Purchased				Balances Outstanding Dec. 31—			
	1957	1958	1959	1960	1957	1958	1959	1960
Consumer Goods.....	960	870	902	878	779	768	806	829
New passenger cars.....	385	336	371	378	635	588	610	625
Used passenger cars.....	341	333	323	298				
Radio and television sets.....								
Household appliances.....	171	201	208	202	144	180	196	204
Furniture.....								
Other.....								
Commercial and Industrial.....	291	265	356	366	288	257	344	393
New commercial vehicles.....	95	70	95	97	135	111	138	151
Used commercial vehicles.....	53	48	59	57				
Other.....	143	147	202	212				
Totals.....	1,191	1,135	1,258	1,244	1,067	1,026	1,150	1,222

Consumer Credit.—Total balances outstanding on credit extended to consumers by retail stores and certain financial institutions are increasing very rapidly. Although the financial institutions included in the survey do not cover all sources of consumer credit, returns from the selected holders indicate that balances outstanding on credit extended to individuals for the purchase of consumer goods and services have almost doubled in the past nine years. The figures of Table 14 do not include credit extended for commercial purposes.

14.—Balances Outstanding on Retail Trade Credit and Loans Extended to Individuals for Non-business Purposes by Certain Financial Institutions, 1952-61

(Millions of dollars)

Year	Retail Trade Credit	Sales Finance Companies	Small Loans Companies	Chartered Banks	Credit Unions	Life Insurance Companies Policy Loans
1952.....	552	373	148	506	94	213
1953.....	624	516	176	585	129	225
1954.....	685	492	215	612	151	240
1955.....	751	599	279	788	174	250
1956.....	798	756	356	759	219	270
1957.....	826	780	362	691	248	295
1958.....	860	768	400	842	313	304
1959.....	915	806	484	1,001	397	323
1960.....	960	828	549	1,143	425	344
1961 ¹	1,006	760	583	1,366	..	360

Accounts outstanding on the books of retailers stood at \$1,088,200,000 at the end of 1961. This amount excludes lumber and building material dealers and farm implement dealers, two trades included up to and including 1957, so that the results for 1958 and subsequent years more closely approximate "consumer" credit shown in Table 15.

15.—Retail Credit 1952-61, and by Kind of Business, 1960

Period	Accounts Receivable (at end of period)			Kind of Business	Accounts Receivable (at end of period)		
	Instal- ment	Charge	Total		Instal- ment	Charge	Total
	\$'000,000	\$'000,000	\$'000,000		\$'000,000	\$'000,000	\$'000,000
1960							
1952.....	246.2	451.3	697.5	Department stores.....	..	..	400.7
1953.....	287.8	483.6	771.4	Motor vehicle.....	17.3	82.5	99.8
1954.....	326.6	492.7	819.3	Men's clothing.....	6.5	11.8	18.3
1955.....	381.8	542.8	924.6	Family clothing.....	13.6	11.1	24.7
1956.....	414.9	566.6	981.5	Women's clothing.....	3.3	11.8	15.1
1957.....	485.1	529.1	1,014.2	Hardware.....	10.1	27.0	37.1
1958 ¹	489.6	447.6	937.2	Furniture, appliance and radio.....	168.4	26.5	194.9
1959 ¹	523.8	468.7	992.5	Jewellery.....	15.2	7.9	23.1
1960 ¹.....	..	..	1,037.6	Grocery and combination (independent).....	—	36.7	36.7
1961 ¹.....	..	..	1,088.2	General stores.....	2	33.3	33.3
				Fuel.....	2.8	49.4	52.2
				Garages and filling stations.....	3	27.7	27.7
				All other trades.....	32.2	92.4	124.6

¹ Excludes lumber and farm implement dealers.

² Included in "Charge".

Subsection 3.—Service Establishments

Service establishments as defined in the Census of Distribution included all those places of business where the major part of gross income (annual turnover) was derived from the rendering of services as opposed to the sale of merchandise. The following types of service were covered: amusement and recreation such as motion picture theatres and producers, and bowling alleys; personal services such as laundries and dry-cleaning plants, barber shops and shoe repair shops; certain business services such as advertising agencies and window display services; repair services such as automobile repair, radio repair and watch repair; burial services; photography, commercial and portrait; hotels and tourist camps; and other services such as cold storage locker rentals and taxis.

Summary statistics of the detailed coverage in 1951 are given in the 1955 Year Book at pp. 974-977. Annual data for certain services only are included here.

Motion Picture Theatres.—The receipts of motion picture theatres increased steadily up to 1953 when they amounted to \$108,603,966, but thereafter decreased each year to \$72,294,344 in 1960. The number of theatres in operation has also decreased rapidly. The receipts of drive-ins, the most recent of theatre developments, amounted to \$6,790,000 in 1960, somewhat below the total receipts of 1959; the previous peak was in 1954.

16.—Summary Statistics of Motion Picture Theatre Operations, 1958-60

Year and Item		Regular Theatres	Drive-in Theatres	Total
1958				
Establishments.....	No.	1,622	232	1,854
Receipts (excluding taxes).....	\$	75,138,668	6,254,410	81,393,078
Amusement taxes.....	\$	6,950,961	504,281	7,455,242
Paid admissions.....	No.	136,334,967	10,148,774	146,483,741
1959				
Establishments.....	No.	1,515	234	1,749
Receipts (excluding taxes).....	\$	68,370,049	7,143,925	75,513,974
Amusement taxes.....	\$	5,959,857	504,546	6,464,403
Paid admissions.....	No.	118,633,400	10,225,995	128,859,395
1960				
Establishments.....	No.	1,427	232	1,659
Receipts (excluding taxes).....	\$	65,504,666	6,789,678	72,294,344
Amusement taxes.....	\$	5,365,182	524,189	5,889,371
Paid admissions.....	No.	107,705,112	10,029,249	117,734,361

Motion Picture Production.—Table 17 shows the operations of private firms in the production and printing of motion picture films and film-strips for industry, government, education, entertainment, etc. Films are also produced by government agencies but information concerning such production is, of course, not available. In addition, nine firms in other business categories produced films in 1960 (one theatrical short, one film for television use, nine other non-theatrical films of five minutes or longer, 280 newsreel stories and ciné-magazines for television, four for other uses, 16 commercial advertising films and seven non-commercial advertising films for television and 20 film titles for unspecified uses). This work brought in revenue amounting to \$66,000.

17.—Summary Statistics of Motion Picture Production by Private Firms, 1952-60

Year	Firms	Employees	Salaries and Wages	Gross Revenue		
				Production	Printing and Laboratory	Other Revenue
	No.	No.	\$	\$	\$	\$
1952.....	30	386	1,006,918	1,331,393	1,274,137	..
1953.....	32	387	1,150,890	1,592,779	1,230,493	..
1954.....	45	478	1,549,233	2,106,131	1,456,405	1,328,021
1955.....	46	445	1,460,421	2,456,038	1,051,673	512,727
1956 ¹	59	1,127	2,483,910	3,726,557	2,095,985	423,899
1957.....	53	1,216	2,758,560	4,471,710	2,978,626	469,369
1958.....	52	1,133	2,770,375	3,902,780	3,344,948	421,975
1959 [*]	54	1,065	3,609,537	5,814,690	3,229,240	389,480
1960.....	66	1,194	3,475,118	7,038,810	2,590,759	342,582

¹ Figures from 1956 include laboratories with no motion picture production; these are not included in previous years.

Table 18 shows types of film produced by private industry, classified by major producing region and by government agencies during 1959 and 1960. Of the total of 750 films of five minutes or longer produced by private industry in 1960, 181 theatrical (one feature included), 13 television and 18 other non-theatrical films were adaptations or language versions of original films; 14 were made for other than Canadian sponsors. Of the government films, seven theatrical shorts, seven television and 170 other non-theatrical films of five minutes or longer were adaptations or language versions of original films and all films were produced for Canadian sponsors.

Private industry and government agencies together printed 44,298,059 feet of 16mm. film in black and white, 8,766,135 feet of 16mm. film in colour, 19,155,561 feet of 35mm. film in black and white and 10,596 feet of 35mm. film in colour.

18.—Private Industry and Government Motion Picture Production, by Type of Film, 1959 and 1960

Year and Type	Private Industry				Government	Private and Government
	Quebec	Ontario	Other Provinces	Total		
1959	No.	No.	No.	No.	No.	No.
Entertainment, Documentary and Instructional Films—						
Five Minutes or Longer—						
Theatrical features.....	—	1	—	2	28	30
Theatrical shorts.....	138	165	2	305	60	365
Non-theatrical television.....	46	139	22	207	179	386
Other non-theatrical.....	2	35	8	45	11	56
Less than Five Minutes.....						
Publicity, News and Other Films—						
Commercial advertising for television.....	423	1,374	367	2,164	—	2,164
Other commercial advertising.....	—	31	3	34	—	34
Non-commercial advertising for television.....	6	52	4	62	6	68
Other non-commercial advertising.....	—	8	6	14	12	26
Trailers for television.....	106	—	—	106	30	136
Other trailers.....	—	4	593	597	1	598
Newsclips for television.....	250	146	20	416	30	446
Other newsclips.....	—	—	—	—	2	2
Newsreel stories and ciné-magazines for television.....	29	79	15	123	—	123
Other newsreel stories and ciné-magazines.....	105	61	—	166	48	214
Slidefilms (film-strips)—						
Silent.....	3	8	—	11	33	44
Sound (with a record).....	—	7	—	7	3	10
Film titles.....	3	46	7	56	1	57
Other films.....	—	585	—	585	—	585

18.—Private Industry and Government Motion Picture Production, by Type of Film, 1959 and 1960—concluded

Year and Type	Private Industry				Government	Private and Government
	Quebec	Ontario	Other Provinces	Total		
	No.	No.	No.	No.	No.	No.
1960						
Entertainment, Documentary and Instructional Films—						
Five Minutes or Longer—						
Theatrical features.....	1	1	1	3	—	3
Theatrical shorts.....	181	9	—	190	13	203
Non-theatrical television.....	243	52	5	300	46	346
Other non-theatrical.....	37	143	77	257	226	483
Less than Five Minutes.....	—	217	—	217	—	217
Publicity, News and Other Films—						
Commercial advertising for television.....	388	1,528	287	2,203	—	2,203
Other commercial advertising.....	—	6	30	36	—	36
Non-commercial advertising for television.....	17	63	2	82	2	84
Other non-commercial advertising.....	—	2	5	7	—	7
Trailers for television.....	62	6	—	68	—	68
Other trailers.....	—	—	405	411	—	411
Newsclips for television.....	144	152	—	296	98	394
Other newsclips.....	—	3	—	3	23	26
Newsreel stories and ciné-magazines for television.....	3	40	15	58	47	105
Other newsreel stories and ciné-magazines.....	110	2	—	112	—	112
Slidefilms (film-strips)—						
Silent.....	2	298	1	301	32	333
Sound (with a record).....	4	12	—	16	6	22
Film titles.....	52	28	24	104	—	104
Other films.....	—	44	392	436	—	436

Power Laundries, Dry-Cleaning and Dyeing Plants.—A record of the value of work performed by power laundries and dry-cleaning and dyeing establishments during the years 1955-60 is given in Table 19, together with other basic data on operation.

19.—Summary Statistics of Power Laundries, Dry-Cleaning and Dyeing Plants 1955-60, and by Province 1960

Year and Province or Territory	Plants	Employees	Salaries and Wages	Cost of Materials	Value of Work Performed
POWER LAUNDRIES					
	No.	No.	\$	\$	\$
1955.....	306	13,991	28,078,112	4,994,234	54,199,647
1956.....	308	14,514	30,090,800	5,738,133	58,873,728
1957.....	320	14,557	31,869,671	5,746,805	63,106,386
1958.....	322	14,258	32,761,909	6,048,982	65,350,103
1959.....	330	13,954	33,864,341	6,658,212	68,095,503
Province, 1960					
Newfoundland and Prince Edward Island.....	6	118	204,279	51,341	512,398
Nova Scotia.....	11	355	667,140	141,140	1,317,211
New Brunswick.....	11	362	687,630	172,362	1,428,054
Quebec.....	78	4,130	10,104,088	2,090,716	20,022,718
Ontario.....	138	5,002	12,379,108	2,295,114	25,206,651
Manitoba.....	9	467	1,109,346	257,695	2,345,842
Saskatchewan.....	8	285	732,786	157,697	1,426,613
Alberta.....	23	964	2,393,504	427,130	5,055,352
British Columbia, Yukon and N.W.T.....	45	1,873	6,155,296	914,729	11,936,506
Canada, 1960.....	329	13,537	34,433,177	6,455,974	69,251,345

19.—Summary Statistics of Power Laundries, Dry-Cleaning and Dyeing Plants 1955-60, and by Province 1960—concluded

Year and Province or Territory	Plants	Em- ployees	Salaries and Wages	Cost of Materials	Value of Work Performed
DRY-CLEANING AND DYEING PLANTS					
	No.	No.	\$	\$	\$
1955.....	1,205	15,909	32,873,802	7,930,290	70,733,946
1956.....	1,328	16,939	35,620,930	9,157,172	78,527,203
1957.....	1,281	16,701	38,289,440	9,710,880	84,281,509
1958.....	1,417	16,721	39,518,187	10,126,668	87,194,590
1959.....	1,483	17,233	42,343,788	10,588,480	92,211,939
Province, 1960					
Newfoundland and Prince Edward Island.....	24	268	672,423	161,623	1,375,439
Nova Scotia.....	51	632	1,277,487	342,534	2,858,217
New Brunswick.....	38	421	720,974	208,564	1,747,477
Quebec.....	295	3,372	8,733,645	2,254,089	18,801,257
Ontario.....	650	7,459	19,028,199	4,866,932	42,099,588
Manitoba.....	58	1,339	3,518,168	711,197	6,668,199
Saskatchewan.....	92	660	1,607,669	410,190	3,822,036
Alberta.....	148	1,536	3,905,394	938,053	8,550,148
British Columbia, Yukon and N.W.T.....	153	1,384	3,883,861	929,018	8,291,598
Canada, 1960.....	1,514	17,061	43,347,820	10,822,200	94,213,959

Advertising Agencies.—Table 20 records the growth of business done by advertising agencies during 1960 as compared with the four previous years.

20.—Summary Statistics of Advertising Agencies, 1956-60

Item	1956	1957	1958	1959	1960
Billings..... \$	204,580,522	226,083,949	237,654,038	254,145,919	272,739,802
Commissionable billings..... \$	201,797,434	222,025,288	233,789,205	250,080,021	267,756,156
Other..... \$	2,783,088	4,058,661	3,864,833	4,065,898	4,983,646
Gross revenue..... \$	32,203,754	35,757,762	38,073,427	41,126,958	45,150,389
Distribution of Billings—					
Publications..... p.c.	52.6	51.6	49.3	47.8	47.2
Production, artwork, etc..... p.c.	15.3	15.1	14.4	14.7	18.7
Radio..... p.c.	10.3	10.0	10.5	10.6	9.7
Television..... p.c.	16.6	18.3	20.5	21.3	19.3
Other visual..... p.c.	4.4	4.4	4.7	4.8	5.1
Other..... p.c.	0.8	0.6	0.6	0.8	--

Hotels.—In 1960 there were 5,294 hotels in operation in Canada, 4,416 of them full-year hotels and 878 seasonal hotels. Table 21 shows the provincial distribution of these establishments, together with the sources of their revenue.

21.—Hotels and Their Receipts, by Source 1955-60 and by Province 1960

Year and Province	Hotels	Rooms	Receipts				
			Rooms	Meals	Beer, Wine and Liquor	All Other Sources	Total
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
1955.....	5,081	147,812	96,273	72,236	211,415	35,385	415,309
1956.....	5,067	149,625	104,453	78,169	223,398	35,811	441,831
1957.....	5,151	151,517	110,505	84,049	238,210	37,305	470,069
1958.....	5,088	151,362	111,174	87,550	243,695	37,876	480,295
1959.....	5,269	154,725	117,396	95,139	264,087	40,861	517,483
Province, 1960							
Newfoundland.....	55	1,077	1,235	754	1,326	386	3,701
Prince Edward Island.....	21	628	399	323	—	58	780
Nova Scotia.....	119	3,594	3,205	2,644	420	560	6,829
New Brunswick.....	81	2,811	2,096	1,422	—	595	4,113
Quebec.....	1,683	44,260	33,210	27,222	71,324	9,880	141,636
Ontario.....	1,499	47,714	39,422	39,249	79,298	14,040	172,009
Manitoba.....	285	7,933	5,684	4,062	27,798	2,720	40,264
Saskatchewan.....	520	11,367	5,817	4,171	29,932	3,124	43,044
Alberta.....	452	14,975	12,610	7,087	32,798	5,714	58,209
British Columbia, Yukon and N.W.T.	579	21,179	17,212	11,707	40,327	5,626	74,872
Canada, 1960.....	5,294	155,538	120,890	98,641	283,223	42,703	545,457

Section 2.—The Marketing of Agricultural Products

A special article covering the general movement of farm-produced foods from producer to consumer, with the exception of the grain trade and livestock, appears in the 1956 Year Book, pp. 917-922. Grain and livestock marketings are covered in each edition of the Year Book; 1960-61 data on grain appear in Subsection 1 following, and 1960 figures on livestock in Subsection 2.

Subsection 1.—Grain Trade

Marketing Problems and Policies, 1960-61

Based on the combined total of the five major Canadian grains (wheat, oats, barley, rye and flaxseed) production, marketings, exports and domestic disappearance during the 1960-61 crop year each recorded increases over their respective 1959-60 levels, and carry-over stocks at the close of the crop year were lower than those at Aug. 1, 1960. Growing conditions were variable across the country in the 1960 season. Wet weather delayed seeding operations in parts of New Brunswick, Ontario and the Prairie Provinces, but early-season growing conditions favoured rapid growth in most areas. Although hot, dry weather in the Prairie Provinces during July considerably reduced prospects for a bumper crop, yields of the major Canadian grains were slightly above average in 1960. Harvest conditions were generally favourable and, as a result, most grain was stored in dry condition.

Marketing of wheat, oats and barley continued under the compulsory crop-year pools system of the Canadian Wheat Board. According to the Canadian Wheat Board delivery quota policy for the 1960-61 crop year for western grain, an initial quota of 100 units was in effect at local delivery points at the beginning of the marketing year. Permit holders were entitled to deliver a maximum of 300 bu. of wheat or 800 bu. of oats or 500 bu. of barley or 500 bu. of rye or any combination of these grains which, when calculated on the unit basis, did not exceed 100 units.

Deliveries of Durum wheat were placed on a number of special open quotas between Aug. 3, 1960 and Feb. 28, 1961. On Feb. 28, 1961, Durum was declared on an open quota for the remainder of the crop year. Deliveries of flaxseed were subject to an initial quota of 5 bu. per seeded acre, effective Aug. 1. This quota was increased to 8 bu. on Oct. 31, 1960 and, on Jan. 23, 1961, was declared open for the remainder of the crop year.

The initial unit quota was followed by general quotas, based upon bushels per specified acreage. Specified acreage consisted of each permit holder's acreage seeded to wheat (including Durum), oats, barley and rye as well as summerfallow and eligible acreage seeded to cultivated grasses and forage crops. The first general quotas were established in late September and were extended and increased as local space became available. By the close of the crop year, all of the 1,994 delivery points in the Western Division were on a 7-bu. quota, largely owing to the heavy volume of grain moved out of country elevators to replenish supplies in export positions. At the same time, it was apparent that many producers, apprehensive of the unusually dry conditions that commenced in early June, were retaining on farms grain that would otherwise have been delivered before the crop year ended. During the crop year, a number of supplementary delivery quotas were issued on soft white spring wheat, oats, barley and rye. The amount of grain marketed under these special authorizations was, of course, in addition to the quantities (of these grains) that producers chose to deliver under the initial and general quota policies.

22.—Supply and Disposition of Canadian Grain, Crop Years Ended July 31, 1960 and 1961

(Millions of bushels)

Item	Wheat	Oats	Barley	Rye	Flaxseed
Crop Year 1959-60					
Carryover, Aug. 1, 1959.....	549.0	119.0	128.2	7.9	6.5
Production in 1959.....	413.5	417.9	225.6	8.1	17.7
Imports ¹	2	2	2	2	0.1
Totals, Supply.....	962.5	536.9	353.7	16.1	24.4
Exports ²	277.3	6.1	63.8	4.5	12.5
Domestic use ⁴	147.6	438.0	168.5	4.8	7.0
Totals, Disposition.....	424.9	444.1	232.2	9.3	19.5
Crop Year 1960-61					
Carryover, Aug. 1, 1960.....	537.6	92.8	121.5	6.8	4.9
Production in 1960.....	489.6	456.1	207.0	10.1	23.0
Imports ¹	2	2	2	2	2
Totals, Supply.....	1,027.2	549.0	328.5	16.9	27.9
Exports ²	353.2	2.7	47.2	2.6	13.6
Domestic use ⁴	147.1	451.1	173.8	6.9	6.7
Totals, Disposition.....	500.4	453.8	221.0	9.5	20.3
Carryover, July 31, 1961.....	526.8	95.2	107.6	7.4	7.6

¹ Import data for wheat, oats, barley and rye, respectively, include flour in terms of wheat, rolled oats and oatmeal in terms of oats, malt and pot and pearl barley in terms of barley, and rye flour in terms of rye.
² Fewer than 50,000 bu. ³ Export data for wheat, oats and barley, respectively, include bagged seed wheat, wheat flour in terms of wheat, rolled oats and oatmeal in terms of oats, and malt and pot and pearl barley in terms of barley.
⁴ Includes human food, seed requirements, industrial use, loss in handling and animal feed.

Wheat.—Supply and Disposition.—Total supplies of wheat in the 1960-61 crop year returned to the 1,000,000,000-bu. level, after having fallen below this quantity in 1959-60 for the first time in five years. The 1,027,200,000 bu. available in 1960-61 consisted of the carryover of 537,600,000 bu. and the 1960 production of 489,600,000 bu. Thus supplies were 7 p.c. higher than those of the preceding year and 14 p.c. higher than the ten-year (1949-50—1958-59) average of 901,700,000 bu. Exports of wheat and flour in terms of wheat at 353,200,000 bu. were 27 p.c. above the 277,300,000 bu. exported in the preceding year and were the fourth highest on record. Domestic disappearance of wheat amounted to 147,100,000 bu. in 1960-61, little changed from the preceding year, reflecting only minor variations in requirements for human food, animal feed and seed. With total disappearance amounting to 500,400,000 bu. and production to 489,600,000 bu., carryover stocks at July 31, 1961 registered a small decline of 10,700,000 bu. and amounted to 526,800,000 bu. This was the fourth successive year of decline of carryover stocks from the record of 733,500,000 bu. attained at July 31, 1957.

23.—Production, Imports, Exports and Domestic Use of Wheat, Crop Years Ended July 31, 1956-61

(Millions of bushels)

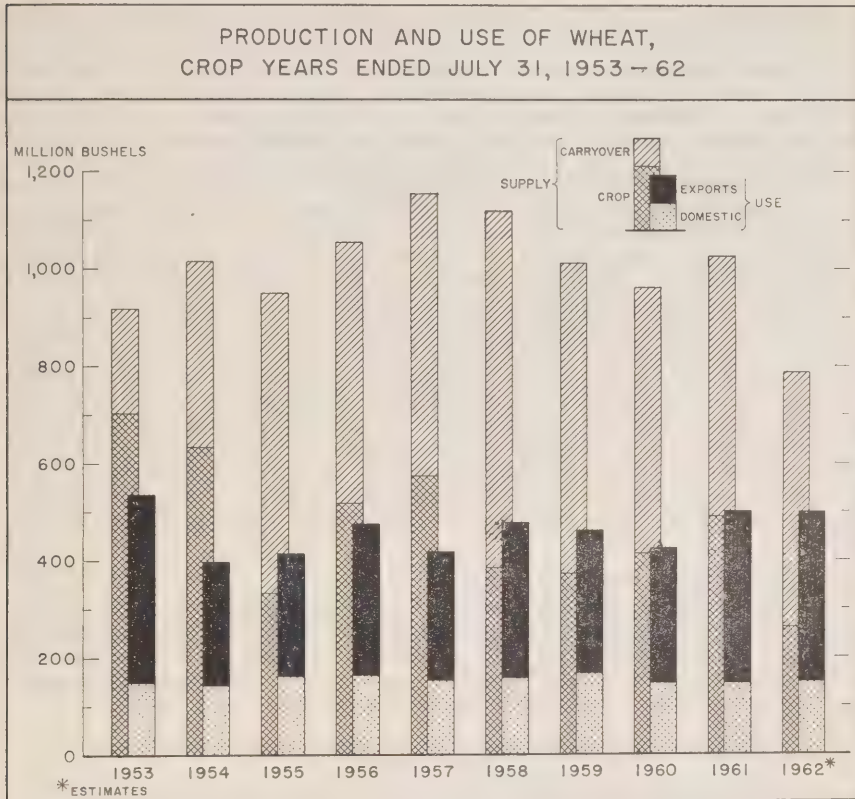
Item	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61
Carryover, Aug. 1.....	536.7	579.6	733.5	639.5	549.0	537.6
Production.....	519.2	573.0	385.5	371.7	413.5	489.6
Imports ¹	2	0.1	2	2	2	2
Totals, Supply.....	1,055.9	1,152.8	1,119.1	1,011.2	962.5	1,027.2
Exports ¹	312.3	264.4	320.3	294.5	277.3	353.2
Domestic use.....	164.1	154.8	159.3	167.6	147.6	147.1
Totals, Disposition.....	476.4	419.2	479.6	462.2	424.9	500.4
Carryover, July 31.....	579.6	733.5	639.5	549.0	537.6	526.8

¹ Includes bagged seed wheat and wheat flour in terms of wheat.

² Fewer than 50,000 bu.

Price and Marketing Arrangements.—Marketing of Western Canadian wheat during the crop year 1960-61 was again conducted by the Canadian Wheat Board on a one-year pool basis, with the initial payment remaining at \$1.40 per bu. basis No. 1 Northern in store Fort William—Port Arthur or Vancouver. No adjustment payments on 1960-61 deliveries were made during the crop year but on Nov. 3, 1961 an interim payment on the 1960-61 pool account for wheat was announced. As in the two preceding years, this payment was based on 10 cents per bu. for all grades and the full amount of payment was some \$39,300,000. The final payment on the 1960-61 wheat pool was announced on Mar. 30, 1962 and amounted to \$125,088,385 after allowing for the Prairie Farm Assistance Act levy and the cost of issuing the final cheques, and crediting the account with estimated additional interest earnings. The average final payment amounted to a record 31.843 cents per bu. while the total payment for No. 1 Northern, basis in store Fort William—Port Arthur or Vancouver, prior to deduction of the PFAA levy amounted to \$1.79526 per bu.

The crop year 1960-61 coincided with the second year of the fourth three-year International Wheat Agreement. Sales under the Agreement were quite widely distributed



with 29 of the 35 importing countries included in the pact purchasing wheat and/or flour from Canada. Purchases of Canadian wheat and flour under the terms of the International Wheat Agreement amounted to the equivalent of 233,700,000 bu. during 1960-61 and accounted for 44 p.c. of all sales by the nine exporting countries participating in the Agreement. The leading market for Canadian wheat and flour under the Agreement was Britain; shipments to that country, at some 91,800,000 bu., accounted for 26 p.c. of the total Canadian International Wheat Agreement exports. Other major importers through the medium of the International Wheat Agreement were: Japan, 55,600,000 bu.; the Federal Republic of Germany, 33,000,000 bu.; Belgium-Luxembourg, 12,400,000 bu.; Switzerland, 7,300,000 bu.; and the Netherlands, 6,600,000 bu. The larger importers of Class II wheat in 1960-61 were: Communist China, 34,700,000 bu.; Czechoslovakia, 12,100,000 bu.; France, 9,900,000 bu.; Russia, 7,500,000 bu.; and Poland, 5,700,000 bu.

Total domestic (commercial and farm) disappearance of wheat in 1960-61 amounted to 147,100,000 bu. compared with the 1959-60 total of 147,600,000 bu. and the ten-year (1949-50-1958-59) average of 155,200,000 bu. The carryover at July 31, 1961 amounted to 526,800,000 bu. and represented a decline of 2 p.c. from the 1960 total of 537,600,000 bu. During 1960-61 domestic sales of all classes of wheat were made at the same prices as those prevailing for wheat sold under the International Wheat Agreement. Class II prices for all grades of wheat coincided with the IWA and domestic quotations.

Other Grains.—*Supply and Disposition.*—Data re supply and disposition of the major Canadian grains for the crop years 1959-60 and 1960-61 are given in Table 22.

Price and Marketing Arrangements.—Marketing of Western Canadian oats and barley was again carried on through compulsory crop-year pools administered by the Canadian Wheat Board. The initial payment for oats in the 1960-61 crop year, basis No. 2 C.W. in store Fort William-Port Arthur was 60 cents per bu., the same as in 1959-60. The initial payment for barley, basis No. 3 C.W. Six-Row in store Fort William-Port Arthur, at 96 cents per bu. was also unchanged from that of 1959-60. No interim payments were made on either grain during the crop year. The final payment on the 1960-61 oats pool was announced on Dec. 11, 1961. The final surplus for distribution was some \$5,100,000 and, based on deliveries of 36,000,000 bu. to the 1960-61 pool, the average payment amounted to 14.094 cents per bu. Total prices (basis in store Fort William-Port Arthur) realized by producers for representative grades after deducting Board operating costs, including carrying charges in country and terminal elevators and Board administrative expenses, etc., but before deducting the 1-p.c. PFAA levy, were \$0.74196 per bu. for No. 2 C.W. oats and \$0.69542 per bu. for No. 1 Feed oats. The final payment on the 1960-61 barley pool was announced on Jan. 5, 1962 and amounted to \$7,207,194, an average of 8.36 cents per bu. based on producers' deliveries of 86,100,000 bu. Total prices (basis in store Fort William-Port Arthur) realized by producers for representative grades, after deduction of the already-mentioned costs but before deducting the 1-p.c. PFAA levy, were \$1.04475 per bu. for No. 3 C.W. Six-Row barley and \$0.94975 per bu. for No. 1 Feed barley. Some 5,800,000 bu. of rye and 18,100,000 bu. of flaxseed were delivered by farmers in Western Canada in 1960-61.

Miscellaneous Grain Trade Statistics

Grain Handled at Eastern Elevators.—Total receipts of the five major grains at eastern elevators in the 1960-61 crop year amounted to 357,855,000 bu., 2 p.c. more than in 1959-60. Shipments amounted to 357,171,000 bu., 7 p.c. over the 1959-60 total. With the exception of a relatively slight increase in receipts of oats, these increases were entirely accounted for by larger receipts and shipments of wheat.

24.—Canadian Grain Handled at Eastern Elevators, Crop Years Ended July 31, 1957-61

NOTE.—Figures for the crop years ended 1922-56 are given in the corresponding table of previous Year Books beginning with the 1931 edition.

Item and Crop Year	Wheat	Oats	Barley	Rye	Flaxseed	Total Grain
	bu.	bu.	bu.	bu.	bu.	bu.
Receipts—						
1956-57	294,264,535	48,311,339	81,483,171	2,865,332	33,507,140	460,431,517
1957-58	302,934,930	47,087,691	80,972,437	2,807,022	17,419,477	451,221,557
1958-59	287,235,822	40,935,632	55,087,986	2,468,424	14,779,910	400,507,774
1959-60	273,525,714	32,442,882	36,293,125	1,345,336	6,989,980	350,597,037
1960-61	283,713,889	32,686,125	34,139,873	1,305,521	6,010,008	357,855,416
Shipments—						
1956-57	277,177,635	48,825,598	81,434,386	3,197,075	33,261,860	443,896,554
1957-58	307,832,795	46,940,137	81,268,949	2,914,724	17,473,880	456,430,485
1958-59	294,412,200	42,689,493	56,544,772	2,551,111	14,635,190	410,832,856
1959-60	254,448,048	33,411,003	37,260,454	1,413,050	7,182,791	333,715,346
1960-61	287,810,455	30,785,810	31,288,234	1,200,616	6,086,236	357,171,351

Grain Inspections.—The volume of Canadian wheat, oats, barley, rye, flaxseed, corn, buckwheat and mixed grain inspected by the Board of Grain Commissioners for Canada in the crop year 1960-61 amounted to 586,100,000 bu., 8 p.c. above the 1959-60 total of 542,000,000 bu. Quantities of the various grains inspected at eastern and western points, as well as inspections of soybeans, beans, peas, sample grain, condemned grain, screenings, sunflower seed, rapeseed, mustard seed, safflower seed, and sorghums appear in Table 25.

25.—Quantities of Grain and Other Field Crops Inspected, Crop Years Ended July 31, 1960 and 1961

Crop	1959-60			1960-61		
	Western Division	Eastern Division	Total	Western Division	Eastern Division	Total
	bu.	bu.	bu.	bu.	bu.	bu.
Wheat.....	374,355,155	3,103,350	377,458,505	411,509,920	5,261,226	416,771,146
Spring wheat.....	374,355,155	—	374,355,155	411,509,920	—	411,509,920
Winter wheat.....	—	3,103,350	3,103,350	—	5,261,226	5,261,226
Oats.....	35,272,064	387,303	35,659,367	40,178,768	640,579	40,819,347
Barley.....	103,886,709	256,278	104,142,987	100,815,644	128,200	100,943,844
Rye.....	4,513,283	24,000	4,537,283	5,751,846	650	5,752,496
Flaxseed.....	16,492,234	—	16,492,234	20,517,695	—	20,517,695
Corn.....	200,126	3,157,766	3,357,892	171,325	787,270	958,595
Buckwheat.....	28,642	127,763	156,405	60,916	60,174	121,090
Mixed grain ¹	229,192	—	229,192	247,675	—	247,675
Soybeans.....	—	5,627,536	5,627,536	—	3,012,753	3,012,753
Beans.....	—	566,810	566,810	—	384,576	384,576
Peas.....	168,224	—	168,224	96,128	—	96,128
Sample grain ¹	88,719	—	88,719	179,287	—	179,287
Condemned grain.....	..	—	..	..	—	..
Screenings.....	..	—	..	..	—	..
Rapeseed ¹	4,922,455	—	4,922,455	13,535,520	—	13,535,520
Mustard seed ¹	716,870	—	716,870	1,083,372	—	1,083,372
Safflower seed ¹	181,257	—	181,257	50,446	—	50,446
U.S.A. sorghums.....	..	—	..	..	—	..
Western Grain Inspected in the Eastern Division—						
Barley.....	...	318,332	318,332	...	405,457	405,457
Flaxseed.....	...	920,101	920,101	...	763,565	763,565
Peas.....	...	76,799	76,799	...	67,758	67,758
Rapeseed ¹.....	...	39,013	39,013	...	212,957	212,957
Mustard seed.....	...	2,000	2,000	—	—	—

¹ Western grain in bushels of 50 lb.

² In bushels of 45 lb.

Lake Shipments of Grain.—The 1961 navigation season opened on Apr. 9 and closed on Dec. 13. During that period, total vessel shipments of wheat, oats, barley, rye, flaxseed and buckwheat amounted to 326,100,000 bu., 17 p.c. more than the 1960 total of 278,700,000 bu. The 1960 season of navigation opened on Apr. 10 and closed on Dec. 13.

26.—Lake Shipments of Canadian Grain from Fort William-Port Arthur, Season of Navigation 1960 and 1961

Grain	1960				1961			
	To Canadian Ports	To U.S. Ports	To Overseas Direct	Total Shipments	To Canadian Ports	To U.S. Ports	To Overseas Direct	Total Shipments
Wheat.....bu.	171,798,472	3,255,950	9,425,912	181,480,334	230,180,141	2,573,190	11,023,801	243,777,132
Oats....."	26,735,286	67,970	296,471	27,099,727	23,762,895	—	20,753	23,783,648
Barley....."	37,160,649	9,482,977	8,337,752	54,981,378	32,836,359	11,951,060	1,467,350	46,254,769
Rye....."	844,256	2,800,728	—	3,644,984	2,666,658	1,038,769	—	4,283,702
Flaxseed....."	5,842,653	—	2,577,945	8,420,598	6,423,193	—	1,579,272	8,002,465
Buckwheat....."	—	—	46,667	46,667	—	—	—	—
Totals.....bu.	242,381,316	15,607,625	20,684,747	278,673,688	295,869,246	15,563,019	14,669,451	326,101,716
Sample grain...lb.	14,201,810	—	—	14,201,810	18,564,788	—	—	18,564,788
Screenings.....tons	48,038	27,990	12,198	88,226	48,167	32,796	15,813	96,776

Wheat Flour.—Production of wheat flour in the crop year 1960-61 amounted to 39,915,000 cwt., about 1 p.c. lower than in the previous crop year. Similarly, wheat milled for flour at 89,700,000 bu. was slightly less than during 1959-60. Of the wheat milled for flour, about 79,700,000 bu. were Western Canadian spring wheat (other than Durum), the remainder consisting of Ontario winter wheat to the amount of 6,200,000 bu., Durum 3,100,000 bu., and "other" 740,000 bu. Based on a daily operating potential of some 157,800 cwt., utilization of milling capacity averaged 82.6 p.c. in 1960-61 compared with 78.0 p.c. in the preceding year.

Exports of wheat flour during the 1960-61 crop year amounted to 15,514,000 cwt., 3 p.c. lower than exports during the previous crop year.

27.—Wheat Milled for Flour, and Production and Exports of Wheat Flour, Five-Year Averages 1936-55 and Crop Years Ended July 31, 1956-61

Crop Year (Aug. 1—July 31)	Wheat Milled for Flour	Wheat Flour Production	Wheat Flour Exports	
			Amount	P.C. of Production
	'000 bu.	cwt.	cwt.	
Av. 1935-36 — 1939-40.....	67,845	29,405,451	9,603,941	32.7
Av. 1940-41 — 1944-45.....	99,705	43,908,245	23,699,546	54.0
Av. 1945-46 — 1949-50.....	107,330	47,011,540	25,819,721	54.9
Av. 1950-51 — 1954-55.....	100,446	43,847,894	21,812,041	49.7
1955-56.....	91,770	40,148,750	17,391,300	43.3
1956-57.....	85,149	37,623,446	14,582,431	38.8
1957-58.....	92,289	40,819,678	17,556,886	43.0
1958-59.....	90,143	39,826,493	16,141,267	40.5
1959-60.....	91,390	40,344,578	16,073,893	39.8
1960-61.....	89,731	39,914,644	15,513,836	38.9

Subsection 2.—Livestock Marketings*

Marketings of all classes of livestock, except cattle, were lower in 1960 than in 1959. Exports of live cattle and sheep were sharply reduced with increased feedlot finishing in Canada. During 1960, cattle marketed through stockyards and packing plants numbered 2,322,626, an increase of 7.4 p.c. over the 2,161,628 marketed in 1959, and a higher proportion of the steers and heifers marketed were graded choice and good. The number of cattle moved from stockyards and plants to feedlots in Canada was 347,269 in 1960, a decrease of about 4 p.c. from the 1959 total. Cattle prices varied within a limited range, the high and low for good steers at Toronto were \$23.87 and \$21.73, respectively, and the average for the year was \$22.65 compared with \$25.10 a year earlier. The marketings of calves at 864,928 were about 2 p.c. lower than in 1959 and there was a slight increase in the number returned to country points for feeding.

Output of hogs, which was at a near record level in 1959, showed considerable reduction in 1960 and the volume of hog carcasses handled through approved and inspected plants numbered 6,764,196, a decrease of 21 p.c. from 1959 gradings; the percentage of Grade A hogs was slightly higher in 1960 than in 1959. With the reduced output there was a sharp gain in hog prices in 1960. Grade A hogs at Toronto ranged from a low of \$20.65 per cwt. in March to \$28.89 in December.

The number of sheep and lambs graded alive was about the same as the previous year, while carcass gradings were 12 p.c. fewer. Price declines were general on all grades except for a small increase in good lambs at Toronto and Calgary which showed yearly average prices per 100 lb. of \$21.85 and \$17.50, respectively. A moderate increase occurred in the number of lambs returned to country points for feeding.

* More detailed information is available from DBS annual report *Livestock and Animal Products Statistics* (Catalogue No. 23-203), and the Department of Agriculture publication *Livestock Market Review*. Statistics of livestock and poultry are given on pp. 418-421 of this edition of the Year Book.

28.—Livestock Marketed at Stockyards and Packing Plants, by Grade, 1956-60

(Exclusive of Newfoundland)

Livestock	1956	1957	1958	1959	1960
	No.	No.	No.	No.	No.
Cattle	2,235,443	2,427,669	2,450,306	2,161,628	2,322,626
Steers.....					
Choice.....	234,515	284,908	337,022	327,721	431,697
Good.....	250,361	271,361	273,090	228,790	228,920
Medium.....	208,538	204,083	154,613	150,547	172,080
Common.....	89,724	68,384	49,233	52,852	51,648
Heifers.....					
Choice.....	28,773	49,900	63,752	62,043	100,818
Good.....	76,949	96,777	113,221	98,354	106,436
Medium.....	124,069	146,861	128,056	111,766	116,918
Common.....	92,552	79,954	64,104	64,585	57,737
Fed calves.....	169,635	166,933	130,090	100,020	97,250
Cows.....	584,402	652,428	645,889	534,581	548,412
Bulls.....	73,846	78,805	82,583	66,276	71,079
Feeder steers.....	240,552	274,585	330,665	286,144	267,209
Stock and feeder cows and heifers.....	61,527	52,690	77,898	77,949	62,422
Calves	963,191	999,797	1,015,355	881,963	864,923
Veal—					
Good and choice.....	244,774	257,578	213,007	157,992	158,069
Common and medium.....	558,063	559,886	510,561	460,184	484,632
Grass.....	87,726	75,505	61,833	56,606	60,674
Stocker.....	72,628	106,828	229,904	207,181	161,553
Hog Carcasses	5,959,605	5,400,239	6,458,848	8,568,217	6,764,196
"A".....	1,696,209	1,551,536	1,852,098	2,530,973	2,064,623
"B".....	3,018,166	2,738,881	3,258,296	4,138,572	3,141,647
"C".....	577,766	535,899	630,593	873,791	724,189
"D".....	30,897	21,032	28,542	69,696	46,726
Heavies.....	108,720	118,983	150,353	184,586	222,683
Extra heavies.....	85,451	93,242	116,439	111,176	78,579
Lights.....	123,008	75,108	84,233	193,478	193,771
Sows.....	266,091	218,260	283,237	388,861	231,753
Injured, ridglings and stags.....	53,297	47,308	55,057	72,084	55,225
Lambs and Sheep Graded Alive	554,808	515,277	483,186	480,314	479,985
Lambs—					
Good.....	328,261	307,141	305,104	311,390	298,380
Common.....	109,926	107,632	103,755	105,748	119,530
Bucks.....	49,178	37,751	18,523	14,085	15,520
Feeders.....	21,938	23,232	22,409	19,600	16,641
Sheep—					
Good.....	23,014	20,359	18,066	15,827	14,958
Common.....	22,401	19,162	15,329	13,664	15,136
Lamb and Sheep Carcasses	49,688	71,441	76,183	82,115	72,233
Lambs—					
"A".....	17,616	28,119	31,664	33,267	26,188
"B".....	13,050	18,395	17,693	20,026	16,410
"C".....	10,281	13,175	13,957	14,965	14,824
"D".....	2,621	3,204	3,588	4,126	4,092
"E".....	705	825	930	1,059	982
Sheep.....	5,415	7,723	8,351	8,672	9,737

29.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export, by Province, 1960

(Exclusive of Newfoundland)

Livestock	Maritime Provinces	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Cattle	28,271	105,446	737,163	230,331	471,127	825,754	67,270	2,463,362
Totals to stockyards.....	2,339	58,624	377,673	130,739	315,891	488,000	10,893	1,391,159
Direct to packers.....	24,552	46,012	327,980	90,076	114,180	262,012	36,705	931,467
Direct for export.....	1,478	810	31,255	492	23,756	35,282	13,142	106,215
Country points in other provinces ¹	2	—	255	24	17,300	12,410	6,530	36,521

For footnote, see end of table, p. 888.

**29.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export,
by Province, 1960—concluded**

Livestock	Maritime Provinces	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Calves	17,377	300,299	225,268	86,805	134,763	167,996	10,009	942,517
Totals to stockyards.....	5,017	97,548	96,494	52,601	94,399	88,164	2,552	436,775
Direct to packers.....	11,937	199,229	112,660	33,751	12,166	53,510	4,900	428,153
Direct for export.....	423	3,522	16,114	324	5,335	1,591	489	27,798
Country points in other provinces ¹	—	—	—	129	22,863	24,731	2,068	49,791
Hogs	169,062	1,165,447	2,516,080	506,301	604,247	1,767,327	41,184	6,769,648
Totals to stockyards.....	8	80,574	250,588	85,404	75,320	180,297	320	675,511
Direct to packers.....	168,513	1,084,870	2,263,302	417,891	528,863	1,584,398	40,848	6,088,685
Direct for export.....	541	3	2,190	6	64	2,632	16	5,452
Sheep and Lambs	41,767	102,401	144,146	36,526	54,186	168,051	27,060	574,137
Totals to stockyards....	3,692	14,865	64,222	12,146	21,812	45,425	1,604	163,866
Direct to packers.....	37,943	87,504	79,429	24,211	18,595	115,505	25,165	388,352
Direct for export.....	80	9	495	—	569	682	263	2,098
Country points in other provinces ¹	52	23	—	169	13,110	6,439	28	19,821
Total Inward Move- ment—²								
Cattle.....	375	2,638	127,676	21,822	56,514	137,691	553	347,269
Calves.....	50	525	98,144	3,761	13,889	45,738	429	162,536
Sheep and lambs.....	—	84	25,225	3,151	1,691	8,449	551	39,151

¹ Livestock billed through stockyards to country points outside province of origin.

² Movement to farms from stockyards and plants on through-billings from country points in one province to country points in another province.

Section 3.—Warehousing and Cold Storage*

Warehousing ranks high among the means by which the utilities of 'place', 'time' and 'possession' are added to the products of industry. Its importance has been emphasized in modern times because of the introduction of cold storage methods in the conservation of perishable foods.

The presentation of warehousing statistics is difficult because it is not an easy matter to define clearly what are to be regarded as stocks in storage. In these days of complicated business relationships and especially since the rise of the department store and chain store as characteristic institutions in the retail merchandising field, it often happens that warehousing is carried on in close relationship with merchandising. However, if the strict economic definition of warehousing is adopted, then this term should be restricted to those facilities that add the utility of 'time' to the 'form' utilities that are the product of the extraction and manufacturing industries. Because the warehouses established in close connection with retail trade are more often than not convenient places for the temporary storage of goods in process of transfer from the manufacturer or wholesaler to the consumer, they are not, in the strict economic sense, services that add the utility of 'time' to commodities already worked up into 'form'. As some clear line must be drawn and because separate statistics of the latter branch of storage are not available, it is considered practicable to interpret warehousing in this way.

The statistics of warehousing are gathered together under this Section. Subsection 1 presents statistics of the licensed storage of grain. Subsection 2 deals with cold storage facilities without which perishable foods such as meats, dairy products, fish and fruits could not be exchanged or distributed on a wide scale; it includes also figures of stocks of food on hand. Subsection 3 deals with the storage of petroleum and its products, and Subsection 4 with public warehouses and customs warehouses. The facilities that specialize in the storage of tobacco and alcoholic liquors are analysed in Subsection 5. These bonded warehouses, as they are called, are under the strict surveillance of Federal Government excise officers, who supervise all movements into and from such places of storage.

* Information supplied by various Divisions of the Departments of Agriculture, Fisheries, Mines and Technical Surveys, and National Revenue and of the Dominion Bureau of Statistics.

Subsection 1.—Licensed Grain Storage

Total grain storage capacity in Canada, licensed under the provisions of the Canada Grain Act by the Board of Grain Commissioners for Canada, amounted to 645,000,000 bu. at Dec. 1, 1960 and represented a decrease of 3,300,000 bu. from the level of Dec. 1, 1959. Although elevator capacity in Eastern Canada increased by close to 12,000,000 bu. with the opening of the new Cargill elevator at Baie Comeau and an additional 1,500,000 was added to Lakehead capacity, this expansion was more than offset by a decline in country elevator space equivalent to some 17,200,000 bu. During the period 1948-59 licensed storage facilities recorded greater capacity each year.

The 1960-61 crop year brought little or no change in the pressure that prevailed on Canada's grain storage and handling facilities for the past several years. However, a feature of the year's operations was that, because of the sharp increase in wheat exports, the licensed elevator system was much more concerned with grain handling than with storage. Marketings of the five major grains to country elevators increased by 6 p.c. over the 1959-60 level while shipments of the same grains from country elevators were up 10 p.c. As indicated in Table 30, there was relatively little variation in the proportion of occupied elevator space at specified periods during the crop year.

30.—Licensed Grain Storage Capacity and Grain in Store, Crop Years
1959-60 and 1960-61

Crop Year and Storage Position	Licensed Storage Capacity	Canadian Grain in Licensed Storage			Proportion of Licensed Storage Capacity Occupied		
	Dec. 1, 1959	Dec. 2, 1959	Mar. 30, 1960	July 31, 1960	Dec. 2, 1959	Mar. 30, 1960	July 31, 1960
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.
1959-60							
Western country.....	391,228	271,578	264,387	322,038	69.4	67.6	82.3
Interior, private and mill.....	20,707	9,735	10,336	9,902	47.0	49.9	47.8
Interior, terminals.....	18,100	13,975	12,812	12,509	77.2	70.8	69.1
Pacific coast.....	24,906	15,563	13,887	11,802	62.5	55.8	47.4
Churchill.....	5,000	4,905	4,905	4,757	98.1	98.1	95.1
Fort William-Port Arthur.....	90,517	57,062	73,807	67,189	63.0	81.5	74.2
Georgian Bay and upper Lake ports...	36,566	28,661	13,898	31,065	78.4	38.0	85.0
Lower Lake and upper St. Lawrence ports.....	20,660	13,253	9,095	14,819	64.1	44.0	71.7
Lower St. Lawrence ports.....	33,312	28,017	14,987	28,502	84.1	45.0	85.6
Maritime ports (excl. Newfoundland).	7,229	5,456	4,460	4,718	75.5	61.7	65.3
Totals, 1959-60.....	648,226	448,206	422,574	507,301	69.1	65.2	78.3
	Dec. 1, 1960	Nov. 30, 1960	Mar. 29, 1961	July 31, 1961	Nov. 30, 1960	Mar. 29, 1961	July 31, 1961
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.
1960-61							
Western country.....	374,033	303,124	304,312	288,648	81.0	81.4	77.2
Interior, private and mill.....	20,514	10,218	9,732	10,423	49.8	47.4	50.8
Interior, terminals.....	18,100	12,756	11,741	11,751	70.5	64.9	64.9
Pacific coast.....	24,906	12,222	15,546	13,553	49.1	82.4	54.4
Churchill.....	5,000	4,837	4,837	4,224	96.7	96.7	84.5
Fort William-Port Arthur.....	91,967	60,685	84,742	74,281	66.0	92.1	80.8
Georgian Bay and upper Lake ports...	36,566	32,903	11,272	30,938	90.0	30.8	84.6
Lower Lake and upper St. Lawrence ports.....	21,460	16,264	9,468	14,384	75.8	44.1	67.0
Lower St. Lawrence ports.....	45,180	34,154	20,043	30,261	75.6	44.4	67.0
Maritime ports (excl. Newfoundland).	7,229	6,101	3,199	4,433	84.4	44.3	61.3
Totals, 1960-61.....	644,956	493,265	474,894	482,896	76.5	73.6	74.9

Subsection 2.—Cold Storage and Storage of Foods

Cold Storage Warehouses.—Under the Cold Storage Act (RSC 1952, c. 52), as amended (RSC 1952, c. 313), subsidies are granted by the Federal Government to encourage the construction and equipment of cold storage warehouses open to the public. The Act is administered by the Department of Agriculture.

There are five classifications of cold storage warehouses in Canada: (1) public warehouses that store foods and food products and where the entire space is open to the public; (2) semi-public, or those that store foods and where part of the space is retained for the products of the owner and the remainder is available to the public; (3) private, or those that store foods and food products and allot no space to the public, a classification that includes refrigerated space in connection with abattoirs, creameries, dairies, cheese factories and wholesale and retail distributing warehouses; (4) locker plant, where the total space is occupied by lockers for rental to the public and where food and food products may be cut, processed, chilled and frozen for storage in lockers; and (5) bait depots, where space is used solely or principally for the freezing and storing of bait for the use of fishermen.

No hard and fast rule can be laid down for distinguishing between public and private warehouses. In general those owned and operated by firms trading in the goods stored in the warehouse are considered as private, although most of these places rent space to the public when it is not required for their own purposes.

The figures in Tables 31 and 32, compiled by the Department of Agriculture, give some idea of the cold storage warehouse capacity in Canada, but it must be explained that it is not possible to secure completely accurate information on this subject and that the figures are approximations only.

31.—Cold Storage Warehouses, by Province, Year Ended Mar. 31, 1961

NOTE.—Figures are approximations only.

Province	Subsidized Public Warehouses				All Warehouses	
	No.	Refrigerated Space	Cost	Total Subsidy	No.	Refrigerated Space
		cu. ft.	\$	\$		cu. ft.
Newfoundland.....	2	44,078	201,960	67,320	71	2,481,809
Prince Edward Island.....	12	358,037	351,409	110,300	24	599,204
Nova Scotia.....	27	5,430,089	4,544,841	1,372,014	194	7,445,051
New Brunswick.....	14	2,089,429	2,116,836	671,281	94	3,187,013
Quebec.....	64	6,716,355	6,551,002	2,093,678	399	26,712,504
Ontario.....	93	14,617,751	12,266,625	3,856,347	968	43,610,640
Manitoba.....	12	3,187,141	2,278,307	687,443	297	11,448,334
Saskatchewan.....	24	1,243,886	1,912,526	612,939	326	5,690,044
Alberta.....	9	1,447,845	2,153,657	701,608	307	8,548,136
British Columbia.....	77	24,057,110	10,304,398	3,113,469	412	36,056,346
Totals.....	334	59,191,721	42,651,561	13,286,399	3,092	145,779,081

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32.—Cold Storage Warehouses and Refrigerated Space, by Province, as at Mar. 31, 1961

NOTE.—Figures are subject to revision.

Class of Storage	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Canada ¹
Public and Semi-public—											
Warehouses..... No.	3	13	36	23	151	225	16	14	19	86	586
Refrigerated Space—											
0° to 30°..... cu.ft.	2,400	31,029	407,075	88,556	3,878,559	904,605	6,060	189,141	122,238	675,369	6,305,032
0° to -10°..... " "	251,100	239,392	1,033,611	1,422,045	4,839,862	10,708,632	4,000,770	576,813	1,236,722	4,239,800	28,568,747
Above 30°..... " "	9,480	45,298	3,676,740	888,690	8,610,641	14,181,992	1,139,772	503,333	356,847	21,693,315	51,366,108
Locker..... " "	—	24,618	55,981	65,967	38,074	815,784	39,480	64,278	61,334	144,592	1,310,108
Private—											
Warehouses..... No.	41	10	140	71	237	535	194	113	165	232	1,738
Refrigerated Space—											
0° to 30°..... cu.ft.	232,135	72,926	444,845	63,198	720,506	735,500	386,168	187,663	273,669	869,521	3,986,161
0° to -10°..... " "	1,366,663	36,693	618,007	371,800	922,959	4,396,490	726,912	588,857	1,206,155	2,091,750	12,336,306
Above 30°..... " "	192,291	142,385	1,151,695	282,417	7,653,149	9,976,694	4,356,861	2,032,398	4,278,640	5,198,662	35,265,192
Locker..... " "	1,000	5,898	—	4,340	—	96,679	5,763	1,020	41,592	37,420	193,712
Bait Depots—											
Warehouses..... No.	27	1	17	—	—	—	—	—	—	—	45
Refrigerated Space—											
0° to 30°..... cu.ft.	361,102	—	47,173	—	—	—	—	—	—	—	408,275
0° to -10°..... " "	62,168	965	3,764	—	—	—	—	—	—	—	66,897
Above 30°..... " "	750	—	—	—	—	—	—	—	—	—	750
Locker..... " "	2,700	—	—	—	—	—	—	—	—	—	2,700
Locker Plants—											
Warehouses..... No.	—	—	1	—	11	208	87	199	123	94	723
Refrigerated Space—											
0° to 30°..... cu.ft.	—	—	2,100	—	8,600	42,455	245,913	14,750	8,350	33,998	356,226
0° to -10°..... " "	—	—	—	—	4,150	270,085	49,032	62,452	46,990	67,665	600,374
Above 30°..... " "	—	—	—	—	5,846	290,078	155,367	354,009	226,273	162,613	1,194,186
Locker..... " "	—	—	4,000	—	30,158	1,191,646	336,236	1,105,300	689,326	841,641	4,198,307
Totals, Warehouses..... No.	71	24	194	94	399	968	297	326	307	412	3,092
Totals, Refrigerated Space..... cu.ft.	2,481,809	599,204	7,445,051	3,187,013	26,712,501	43,610,640	11,448,334	5,690,044	8,548,136	36,056,346	145,779,081

¹ Exclusive of the Yukon and Northwest Territories.

33.—Stocks of Food Commodities in Dairy Factories and Cold Storage Warehouses, as at Jan. 1, 1960 and 1961

Year and Item	As at Jan. 1	Minimum during Year	Date at which Minimum Occurred	Maximum during Year	Date at which Maximum Occurred	Twelve-Month Average
1960						
Butter, creamery, dairy and whey ¹	'000 lb. 105,964	76,767	Apr. 1	139,366	Oct. 1	109,450
Cheese, cheddar ¹	" 52,532	42,432	May 1	64,550	Oct. 1	62,905
Evaporated whole milk.....	" 44,598	11,470	Apr. 1	64,247	Sept. 1	40,976
Skim milk powder.....	" 21,942	15,644	Apr. 1	30,982	Aug. 1	23,650
Eggs, shell ¹	'000 cases 81	43	Nov. 1	195	June 1	111
Eggs, frozen.....	'000 lb. 4,639	4,639	Jan. 1	8,775	Sept. 1	6,732
Poultry, dressed and eviscerated ¹	" 26,185	12,405	Aug. 1	48,978	Dec. 1	22,442
Pork, fresh.....	" 8,121	4,648	Sept. 1	8,121	Jan. 1	5,867
Pork, frozen.....	" 43,534	9,993	Oct. 1	50,205	May 1	33,897
Pork, cured and in cure.....	" 6,925	6,925	Jan. 1	11,228	Apr. 1	8,619
Lard.....	" 7,663	3,833	Nov. 1	7,745	June 1	6,087
Beef, fresh.....	" 11,658	11,658	Jan. 1	14,729	Oct. 1	13,344
Beef, frozen.....	" 17,154	12,788	Sept. 1	17,154	Jan. 1	15,112
Beef, cured, etc.....	" 385	300	Nov. 1	440	June 1	382
Veal.....	" 4,126	3,226	Mar. 1	6,565	Nov. 1	4,673
Mutton and lamb.....	" 3,037	780	June 1	3,290	Dec. 1	1,936
Apples, fresh.....	'000 bu. 5,237	233	June 1	8,197	Nov. 1	2,317
Fruit, frozen.....	'000 lb. 31,806	20,221	June 1	36,769	Sept. 1	29,417
Fruit, in preservatives.....	" 12,218	7,908	Aug. 1	12,218	Jan. 1	9,839
Potatoes.....	'000 cwt. 12,056	1,947	June 1	17,531	Nov. 1	6,102
1961						
Butter, creamery, dairy and whey ¹	'000 lb. 113,977	83,302	Apr. 1	158,506	Oct. 1	120,706
Cheese, cheddar ¹	" 55,766	43,080	Apr. 1	71,802	Oct. 1	56,795
Evaporated whole milk.....	" 43,549	24,078	Apr. 1	81,070	Oct. 1	52,492
Skim milk powder.....	" 23,204	20,440	Mar. 1	53,703	Nov. 1	34,657
Eggs, shell ¹	'000 cases 51	38	Dec. 1	71	July 1	54
Eggs, frozen.....	'000 lb. 5,820	3,208	Dec. 1	5,820	Jan. 1	4,885
Poultry, dressed and eviscerated ¹	" 27,143	17,202	June 1	65,792	Dec. 1	28,546
Pork, fresh.....	" 4,506	4,506	Jan. 1	6,742	Nov. 1	5,479
Pork, frozen.....	" 12,130	10,242	Oct. 1	26,843	May 1	17,058
Pork, cured and in cure.....	" 6,317	6,317	Jan. 1	8,984	Dec. 1	7,780
Lard.....	" 5,949	4,256	Nov. 1	7,351	Apr. 1	5,671
Beef, fresh.....	" 11,807	11,807	Jan. 1	14,445	Oct. 1	13,223
Beef, frozen.....	" 18,116	13,980	Sept. 1	20,872	Dec. 1	16,098
Beef, cured, etc.....	" 307	307	Jan. 1	766	Oct. 1	555
Veal.....	" 5,284	3,180	Apr. 1	5,660	Dec. 1	4,521
Mutton and lamb.....	" 3,314	1,327	Aug. 1	5,356	Dec. 1	2,635
Apples, fresh.....	'000 bu. 4,827	275	June 1	9,714	Nov. 1	2,515
Fruit, frozen.....	'000 lb. 29,490	17,219	June 1	42,866	Oct. 1	24,983
Fruit, in preservatives.....	" 9,555	6,167	June 1	11,389	Dec. 1	8,561
Potatoes.....	'000 cwt. 13,898	3,240	June 1	20,807	Nov. 1	7,465

¹ Includes amounts in transit.

Cold Storage Holdings of Fish.—Stocks of frozen fish held in Canada during 1961 followed the usual seasonal trend. Normally, stocks decrease gradually during the early months of the year and reach a low point at the beginning of April or May when fishing activity is at its lowest ebb; during subsequent months they increase and reach a peak at the beginning of October or November.

In 1961, stocks were on the average much lower than in 1960 but at about the same level as in 1959. Groundfish fillets and blocks constitute the most important item in the production of frozen fish in Canada. In 1961 the production of frozen groundfish fillets on the Atlantic Coast reached an all-time high of more than 150,000,000 lb. The demand

for this product in the United States, which was weak in the latter part of 1959 but improved at the end of 1960, was very good in 1961. Exports were considerably higher than in 1960 and stocks at the end of the year were lower than the year before. On the Pacific Coast, the production of frozen, dressed halibut was higher than 1960 by more than 25 p.c. However, in contrast to conditions in 1960, when shipments of chilled halibut were chiefly in demand (and supplies of the frozen product had to be held in storage for an extended period), there was a steady movement of frozen halibut to the market in 1961. Stocks in storage on Dec. 31 were 20 p.c. below those on the same date of 1960.

34.—Storage Stocks of Fish, by Month and by Type, 1959-61

NOTE.—Stock totals are as at the beginning of each month; stocks of the individual products are monthly averages

Month	1959	1960	1961 ^a	Group and Product	1959	1960	1961 ^a
	'000,000 lb.				'000,000 lb.		
Jan. 1	47.4	54.5	55.0	Frozen, Fresh Seafish¹	42.0	47.9	41.5
Feb. 1	38.5	50.0	45.6	Salmon, Pacific, dressed and filleted.....	6.1	4.2	5.0
Mar. 1	30.0	43.3	34.3	Halibut, Pacific, dressed.....	8.2	7.6	7.0
Apr. 1	26.1	31.7	27.9	Cod, Atlantic, filleted.....	9.4	14.1	9.6
May 1	29.4	32.3	29.4	Frozen, Freshwater Fish¹	6.0	5.2	6.5
June 1	35.9	42.6	36.5	Whitefish, dressed and filleted.....	2.1	1.6	1.8
July 1	50.5	54.0	47.7	Tullibee, round or dressed.....	0.2	0.2	0.1
Aug. 1	62.4	66.8	61.4	Pickrel (yellow and blue), dressed and filleted	0.2	0.7	1.3
Sept. 1	71.3	73.6	68.2	Frozen, Smoked Fish¹	1.7	1.7	1.7
Oct. 1	70.9	75.1	67.2	Cod, Atlantic, filleted.....	0.8	0.9	0.7
Nov. 1	69.8	70.4	64.4	Sea herring, dressed.....	0.5	0.5	0.5
Dec. 1	63.9	63.4	58.7	Haddock, dressed.....	0.2	0.2	0.2
Averages...	49.7	54.8	49.7	Averages.....	49.7	54.8	49.7

^a Includes other items not listed.

Cold Storage of Dairy Products.—Cold storage facilities are a necessary adjunct in the manufacture of dairy products, most of which are perishable in varying degrees. All creameries have facilities for the storing of butter, the size and type of storage depending on the size of the creamery. If the butter produced at small country plants is not printed for immediate sale, the butter solids are disposed of or are transported to larger creameries where better refrigeration is available or to private or public cold storages in the larger urban centres. Temperature control is important in the curing process for cheese as well as in the prevention of deterioration. Most cheese factories are equipped with mechanical refrigeration and are required to have storage capacity for 17 days' produce during the period of maximum manufacture. The cheese is then transferred to central warehouses. As soon as milk is bottled it is placed in storage and held until delivery. Dry whole milk and other dried milk products containing fat are usually stored in cool air chambers to prevent rancidity.

Cold Storage of Apples and Potatoes.—Cold storage space for apples in Canada has increased rapidly in recent years as a result of the promotion of orderly marketing, the extension of the marketing season generally, and increased production in some areas. This trend has followed the curtailment in shipments to traditional markets in Britain and other European countries after World War II. There has been an increase recently in the construction of both privately and co-operatively owned storages, particularly in the Province of Quebec.

Potatoes are not ordinarily held in cold storage but recently there has been an increase in the construction of potato storage houses and warehouses in the commercial producing areas.

Subsection 3.—Storage of Petroleum and Petroleum Products

Bulk storage plants for petroleum and petroleum products are established at convenient distributing centres, often on a waterfront so that full advantage may be taken of the lower cost of water-borne traffic. From these centres the goods are transferred by boat, rail or truck to smaller distributing depots or directly to retail outlets. The principal refining and distributing centres are located at or near Halifax, Saint John, Quebec, Montreal, Ottawa, Toronto, Sarnia, Fort William, Regina, Calgary, Turner Valley, Edmonton and Vancouver.

35.—Petroleum and Petroleum Products in Storage as at Jan. 1, 1959-61

(Barrels of 35 Imperial gallons)

Product	1959	1960	1961
	bbL	bbL	bbL
Crude oil.....	..	9,001,851 ¹	9,865,806 ¹
Natural gas liquids.....	..	32,689 ¹	186,142 ¹
Liquefied petroleum gas.....	179,931	277,377	164,828
Petrochemical feed stocks.....	18,130	41,893	27,975
Naphtha specialties.....	337,070	407,034	459,148
Aviation gasoline.....	1,453,608	1,430,675	1,074,822
Motor gasoline.....	16,855,788	19,178,603	18,577,565
Aviation turbo-fuel.....	958,785	1,237,957	1,483,803
Kerosene, stove oil and tractor fuel.....	4,872,923	5,439,609	5,539,036
Diesel fuel.....	5,040,179	6,096,810	6,866,470
Light fuel oil (Nos. 2 and 3).....	14,670,133	17,284,700	17,589,340
Heavy fuel oil (Nos. 4, 5 and 6).....	5,029,765	5,762,987	6,521,209
Asphalt.....	979,101	1,350,151	1,501,845
Coke.....	38,037	56,858	90,805
Lubricating oil and grease.....	1,530,027	1,503,929	1,612,843
Wax and candles.....	26,009	24,119	18,264
Still gas.....	700	570	1,381
Unfinished products.....	5,000,504	5,442,328	5,979,438

¹ At refineries only.

Subsection 4.—Warehousing of General Merchandise and Refrigerated Goods

Public Warehouses.—The summary statistics of the warehousing industry in Canada presented in Table 36 cover the operations of the majority of firms offering general merchandise and refrigerated storage facilities to the public. Associations and organizations such as co-operatives operating warehouses or storages for their own members are not included nor are packing houses and other firms operating storage facilities in connection with their respective businesses. Small food lockers are not included except where they may be part of a general warehousing business.

Commencing in 1960, the statistics of household goods storage operators, formerly included with warehousing statistics, were compiled separately and are presented in Table 11 under Road Transport, p. 790.

36.—Summary Statistics of Warehousing of General Merchandise and Refrigerated Goods, 1957-60

Item	1957 ¹	1958 ¹	1959 ¹	1960
Companies reporting..... No.	234	213	204	111
Investment in land, warehouses, etc..... \$	67,205,471	63,958,833	68,834,854	64,896,124
Warehousing Facilities—				
General merchandise..... cu. ft.	82,025,294 ²	75,295,788 ³	76,995,721 ⁴	50,485,820
Refrigerated goods..... "	28,397,711	30,960,505	32,550,680	30,653,893
Revenue—				
Storage..... \$	16,800,663	16,064,998	17,841,405	16,335,325
Cartage and moving..... \$	20,927,270	13,051,872	15,499,509	9,883,741
Miscellaneous..... \$	15,487,075	11,359,192	14,748,085	6,028,315
Total Revenue..... \$	53,215,008	40,476,062	48,088,999	32,247,381
Operating expenses..... \$	48,462,389	36,624,592	43,262,593	29,496,885
Net Operating Revenue..... \$	4,752,619	3,851,470	4,826,406	2,750,496
Employees, average..... No.	7,554	5,683	6,441	3,734
Salaries and wages..... \$	25,002,080	18,813,722	22,880,612	15,418,560
Motor Vehicles—				
Trucks..... No.	1,922	1,428	1,570	969
Tractors..... "	587	329	353	173
Trailers and semi-trailers..... "	690	427	477	228

¹ Includes household goods storage operators (see bottom of p. 894).

² Includes 32,331,441 cu. ft. of

storage space for household goods.

³ Includes 21,601,786 cu. ft. of storage space for household goods.

⁴ Includes 1,574,620 cu. ft. of storage space for household goods.

Customs Warehouses.—Warehouses for the storage of in-bond goods are known as customs warehouses and are divided into three categories. (1) Those occupied by the Federal Government, some of which are used for examination and appraisal of imported goods and others, known as Queen's warehouses, used for the storage of unclaimed, abandoned, seized or forfeited goods. (2) Bonded warehouses operated and owned by a person other than the Crown and used for the storage and safekeeping of imported goods after entry and conforming to one of the following: (a) an entire building or part of a building completely separated from the remainder of the building by adequate partitions or walls and devoted to the safekeeping of imported goods consigned or sold to the warehouse keeper or other persons; (b) a yard, shed or other suitable enclosure or area devoted to the safekeeping of imported goods too large or too heavy for lodging in a Class 2(a) warehouse; and (c) a farm, yard or other suitable enclosure devoted to the safekeeping of horses, sheep and cattle for feeding and pasturage. (3) Suffrance warehouses for the landing, storage, safekeeping, transfer, examination, delivery and forwarding of imported goods before entry and conforming to one of the following: (a) a warehouse operated or provided by railway, express, airline and shipping companies; (b) warehouses for in-bond goods arriving by commercial motor vehicle; and (c) all suffrance warehouses not described under (a) or (b).

Subsection 5.—Bonded Warehousing and Storage of Wines

Bonded Warehousing. The Excise Duty Branch of the Department of National Revenue considers any premises licensed under the Excise Act to be a warehouse, whether for storage of raw materials to produce finished tobacco or cigar products or for spirits or malt used for brewing. Practically the total production of spirits is placed in bonded warehouses and only a small part of the output of beer is retained in storage. Wine, unlike spirits and beer, is not secured under bond. All imports of alcoholic beverages must

go through bonded warehouses before being released to Provincial Liquor Commissions or Boards, or other agencies authorized by the Commissions or Boards to take alcoholic beverages out of bond. Similarly, tobacco, cigars and cigarettes that are not stamped and duty paid are secured in bond. In addition to these warehouses, there are those in which no manufacturing or production is carried on but which are used solely for the storage of goods upon which duty has not been paid. Goods are stored in these warehouses usually for the purpose of rapid distribution and for delivery as ships' stores.

Table 37 shows the quantities of distilled liquor, tobacco, cigars and cigarettes in bond in recent years. In addition, the year-end inventories of beer in breweries amount to some 30,000,000 gal.

37.—Distilled Liquor, Tobacco, Cigars and Cigarettes in Bond, Quarterly 1957-61

Item and Quarter		1957	1958	1959	1960	1961
Distilled Liquor—						
March.....	'000 pf. gal.	117,567	123,289	126,052	135,656	143,076
June.....	"	120,613	125,661	130,082	137,554	146,072
September.....	"	120,058	125,579	130,907	137,743	146,614
December.....	"	120,371	126,057	132,054	139,070	147,659
Tobacco, Unmanufactured—						
March.....	'000 lb.	199,716	197,282	204,836	224,622	246,367
June.....	"	179,079	187,174	213,529	191,142	228,044
September.....	"	148,881	162,040	179,611	158,357	194,763
December.....	"	120,186	150,965	178,078	179,170	188,633
Cigars—						
March.....	'000	2,986	2,727	1,977	1,300	1,393
June.....	"	1,170	1,150	349	156	115
September.....	"	1,126	980	237	195	129
December.....	"	1,194	530	119	124	156
Cigarettes at 3 lb. or under—¹						
March.....	'000	8,656	4,410	5,195	9,505	4,874
June.....	"	3,247	5,341	—	3,235	7,968
September.....	"	11,440	5,531	3,139	6,805	6,018
December.....	"	8,419	6,696	5,738	3,443	3,376

¹ Excludes Newfoundland.

Beverage spirits, as shown in Table 38, refer to spirits released for consumption but not to industrial alcohol; malt beer does not include beer made from duty-free malt; malt used is the total malt used to produce the malt beer; tobacco includes all types of manufactured tobacco products and snuff.

38.—Beverage Spirits, Malt Beer, Malt, Tobacco and Tobacco Products Taken Out of Bond and Destined for Consumption, 1952-61

Year	Beverage Spirits	Malt Beer ¹	Malt Used	Cigars	Cigarettes	Tobacco
	pf. gal.	gal.	lb.	'000	'000	'000 lb.
1952.....	11,171,830	195,780,017	378,764,899	200,263	17,848,325	33,637
1953.....	12,445,166	202,897,996	381,508,232	235,587	21,001,492	28,732
1954.....	11,946,178	2	370,328,106	244,248	22,113,102	26,846
1955.....	11,847,649	2	372,693,929	252,633	24,576,087	26,000
1956.....	13,733,393	2	386,064,673	255,570	26,997,705	23,272
1957.....	14,544,797	2	404,697,177	292,650	30,149,746	22,338
1958.....	15,777,180	2	385,628,053	323,124	32,404,186	23,332
1959.....	19,173,426	2	399,626,852	311,277	33,622,125	23,911
1960.....	16,501,382	2	417,348,530	332,324	34,289,354	23,988
1961.....	..	2	420,884,488	336,693	36,699,203	24,027

¹ Duty has been paid herein on the malt.

² Duty solely on gallonage basis since 1954.

Storage of Wines.—The wine industry is confined to a few localities such as the Niagara Peninsula in Ontario and the Okanagan Valley in British Columbia. Firms manufacturing native wines are not bonded, as far as the Federal Government is concerned, nor is wine in storage for maturing placed in bond. The only goods warehoused in bond in connection with wineries are sugar supplies and supplies of grape spirit distilled by the distilleries and held by the wineries for fortifying wines.

39.—Native Wine Produced and Placed in Storage for Maturing, 1951-60

Year	Ontario		Other Provinces		Totals	
	gal.	\$	gal.	\$	gal.	\$
1951.....	4,182,767	2,729,147	494,288	407,849	4,677,055	3,136,996
1952.....	4,383,358	2,764,750	552,694	440,864	4,936,052	3,205,614
1953.....	3,562,498	2,237,316	672,692	430,574	4,135,190	2,667,890
1954.....	4,414,981	2,688,060	640,183	510,464	5,055,164	3,198,524
1955.....	5,059,418	3,059,868	624,670	480,491	5,684,088	3,540,359
1956.....	4,945,429	2,880,176	528,447	415,763	5,473,876	3,295,939
1957.....	4,746,998	3,151,865	656,510	437,243	5,403,508	3,589,108
1958.....	6,593,607	3,810,707	822,398	635,609	7,416,005	4,446,316
1959.....	6,078,805	3,623,075	954,626	754,565	7,033,431	4,377,640
1960.....	7,262,953	4,619,610	829,675	785,815	8,092,628	5,405,425

Section 4.—Co-operative Organizations

Canadian co-operative activities continued to be dominated by marketing and purchasing associations which did a volume of business, including other revenue, amounting to \$1,363,986,000 during the year ended July 31, 1960—an increase of almost 4 p.c. over the previous year. Other revenue, which included payment for services provided by the co-operatives such as grinding, chopping, trucking and revenue for rent, interest dividends and commissions, accounted for \$28,742,000.

Co-operative associations reported a membership of 1,316,484 during 1960, although this number includes some duplication since many individuals belong to more than one co-operative. The number of associations decreased from 1,982 in 1959 to 1,936 in 1960, mostly through amalgamations. However, the number of places of business continued to increase and reached 5,469 in 1960.

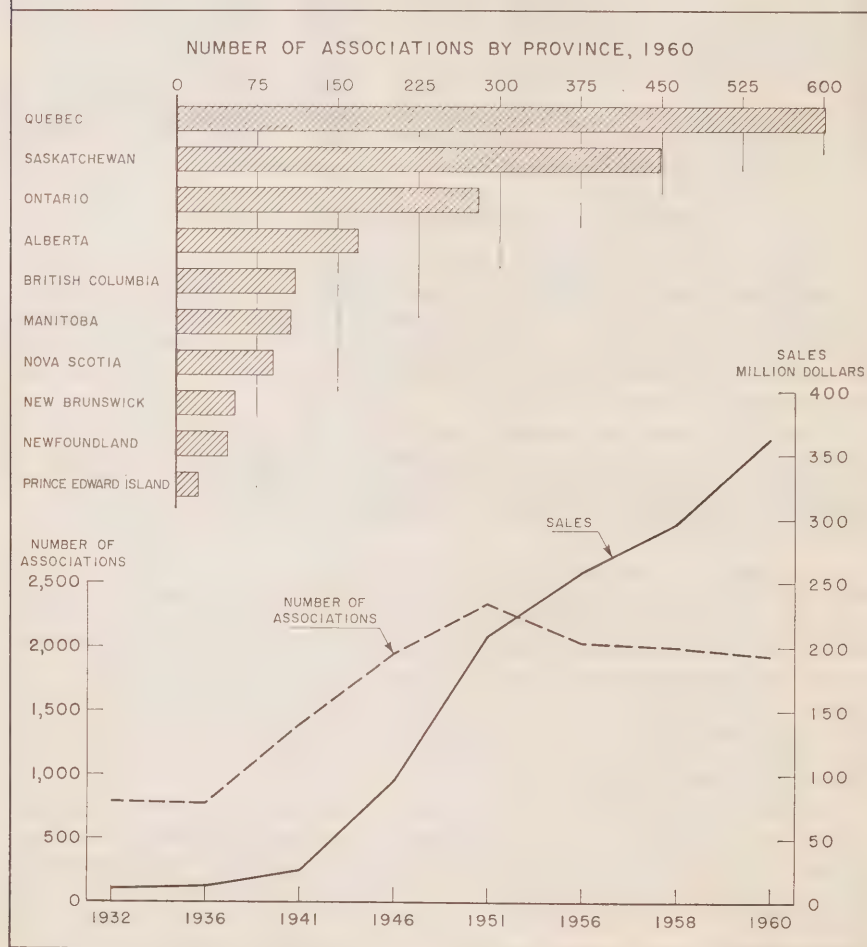
Farm products marketed through co-operatives represented 33 p.c. of the total value of farm products marketed in Canada in 1960. This proportion has varied very little in each of the past ten years. Total sales of farm products by co-operatives were recorded at \$972,333,000, an increase of \$9,003,000 over the previous year. Grain and seed sales were valued at \$377,720,000 and represented 39 p.c. of the total sales of farm products by co-operatives; livestock sales were next in importance and were valued at \$276,792,000; dairy product sales ranked third and were valued at \$219,533,000. Sales of eggs and poultry, and fruit and vegetables, which accounted for most of the remainder, were valued at \$42,026,000 and \$40,950,000, respectively.

On the provincial level, Saskatchewan recorded the greatest value of farm products marketed co-operatively. Sales in that province amounted to \$260,225,000, and grain and seed sales accounted for 62 p.c. of that amount. Other provinces sharing substantially in the sales of farm products by co-operatives were: Ontario with \$184,280,000, Alberta with \$162,568,000, Quebec with \$115,714,000, Manitoba with \$88,452,000 and British Columbia with \$65,142,000.

Sales of merchandise and supplies by co-operatives amounted to \$362,910,000 in 1960, an increase of 9 p.c. over the previous year. Sales of feed, fertilizer and spray material amounted to \$116,340,000, 32 p.c. of total sales of merchandise and supplies. Food products and petroleum products, and auto accessories amounted to \$100,831,000 and \$63,447,000, respectively. Leading provinces for co-operative sales of merchandise and supplies were: Quebec with \$89,760,000, Saskatchewan with \$74,291,000 and Ontario with \$67,031,000.

Members' equity in marketing and purchasing co-operatives increased by \$21,643,000 in 1960 and an increase of \$20,072,000 was recorded in liabilities to the public.

NUMBER AND SALES OF CO-OPERATIVE MARKETING AND PURCHASING ASSOCIATIONS, CROP YEAR ENDED JULY 31, 1932-60
(EXCLUDES FISHERMEN'S CO-OPERATIVES)



Wholesale co-operatives are federations of local co-operatives which act as central marketing agencies for farm products and as wholesalers of farm supplies, machinery and consumer goods. The wholesale associations had assets amounting to \$86,473,000 in 1960, of which members' equity represented 40 p.c. Total sales of supplies and farm products by these associations amounted to \$295,081,000, an increase of 4 p.c. over the 1959 total.

In addition to the above-mentioned associations, there were 865 service co-operatives in 1960 which provided a wide range of functions such as housing, rural electrification, medical insurance, transportation, recreation facilities, custom grinding, seed cleaning, operation of farm machinery and restaurant operation. These associations had a total membership of 281,427 and assets amounting to \$106,417,000.

Data for marketing and purchasing co-operatives do not include fishermen's co-operatives. Co-operatives in this category were found in all provinces in 1960, with the exception of Manitoba and Alberta, and reported a total membership of 10,297, sales of fish amounting to \$20,630,000 and sales of fish supplies amounting to \$2,164,000, the latter constituting about 10 p.c. of all fish and fish supplies marketed in Canada. The proportions of sales of fish for the different areas across the country were: the Atlantic Provinces 42 p.c. (including the business of United Maritime Fishermen, an interprovincial co-operative), British Columbia 30 p.c., Quebec 17 p.c., Ontario 9 p.c., and Saskatchewan 2 p.c.

40.—Summary Statistics of Co-operative Marketing and Purchasing Associations, Crop Years Ended July 31, 1951-60

Year	Associations	Places of Business	Shareholders or Members	Sales of Farm Products	Sales of Supplies	Total Business ¹
	No.	No.	No.	\$'000	\$'000	\$'000
1951.....	2,348	5,830	1,184,235	769,265	209,986	988,460
1952.....	2,194	5,470	1,163,803	840,114	234,848	1,085,855
1953.....	2,221	4,987	1,195,985	874,698	245,630	1,147,590
1954.....	2,086	4,510	1,196,426	733,012	234,583	966,298
1955.....	1,949	5,016	1,199,808	704,047	228,446	941,378
1956.....	2,041	5,171	1,255,788	823,389	258,752	1,092,516
1957.....	2,022	5,023	1,363,470	817,601	283,730	1,116,002
1958.....	2,002	5,135	1,321,304	895,168	296,743	1,209,805
1959.....	1,982	5,267	1,290,462	963,330	332,943	1,315,167
1960.....	1,936	5,469	1,316,484	972,333	362,911	1,363,986

¹ Includes other revenue.

41.—Summary Statistics of Co-operative Marketing and Purchasing Associations, by Province, Crop Years Ended July 31, 1959 and 1960

Province and Year	Associations	Shareholders or Members	Sales of Products	Sales of Merchandise	Total Business ¹
	No.	No.	\$'000	\$'000	\$'000
Newfoundland.....1959	45	7,324	25	4,421	4,463
.....1960	48	7,257	2	5,075	5,107
Prince Edward Island.....1959	20	6,012	2,278	4,166	6,537
.....1960	21	6,194	3,557	4,019	7,663
Nova Scotia.....1959	100	24,219	6,371	15,592	22,274
.....1960	90	29,885	7,395	16,577	24,552
New Brunswick.....1959	57	13,987	9,033	7,919	17,143
.....1960	55	14,029	9,327	9,066	18,559

¹ Includes other revenue.

41.—Summary Statistics of Co-operative Marketing and Purchasing Associations, by Province, Crop Years Ended July 31, 1959 and 1960—concluded

Province and Year	Associations	Shareholders or Members	Sales of Products	Sales of Merchandise	Total Business ¹
	No.	No.	\$'000	\$'000	\$'000
Quebec.....1959	614	92,162	108,077	80,124	188,362
1960	601	94,567	115,714	89,760	207,998
Ontario.....1959	293	156,478	185,499	64,950	254,228
1960	280	160,157	184,280	67,031	255,708
Manitoba.....1959	107	135,808	81,403	22,690	106,113
1960	107	137,847	88,452	26,349	117,191
Saskatchewan.....1959	455	471,850	259,647	69,844	337,283
1960	449	472,633	260,225	74,291	340,713
Alberta.....1959	175	218,615	174,026	28,982	204,866
1960	169	222,795	162,568	30,526	202,732
British Columbia.....1959	110	50,613	65,189	24,721	92,169
1960	110	54,855	65,142	29,446	96,730
Interprovincial.....1959	6	113,394	71,782	9,534	81,729
1960	6	116,265	75,671	10,771	87,033
Totals.....1959	1,982	1,290,462	963,330	332,943	1,315,167
1960	1,936	1,316,484	972,333	362,911	1,363,986

¹ Includes other revenue.

42.—Products Handled by Marketing and Purchasing Co-operatives, Crop Years Ended July 31, 1959 and 1960

Product	1959		1960	
	Associations ¹	Value of Sales	Associations ¹	Value of Sales
	No.	\$'000	No.	\$'000
Marketing.....	1,017	963,330	981	972,333
Dairy products.....	438	216,447	463	219,533
Fruit and vegetables.....	161	41,682	129	40,950
Grain and seed.....	135	366,589	107	377,720
Livestock.....	332	287,204	337	276,792
Eggs and poultry.....	176	38,828	164	42,026
Lumber and wood.....	44	2,875	44	3,745
Honey.....	9	2,550	8	2,968
Wool.....	11	1,270	13	1,553
Fur.....	4	608	5	740
Tobacco.....	8	1,946	3	1,859
Maple products.....	3	2,747	3	3,635
Miscellaneous.....	69	584	63	812
Merchandising.....	1,568	332,943	1,586	362,910
Food products.....	818	94,463	834	100,831
Clothing and home furnishings.....	533	11,596	578	12,229
Hardware.....	719	21,464	703	25,342
Petroleum products and auto accessories.....	654	57,855	680	63,447
Feed, fertilizer and spray material.....	1,040	108,857	970	116,340
Machinery and equipment.....	234	10,763	312	12,684
Coal, wood and building material.....	573	20,032	567	23,402
Miscellaneous.....	594	7,913	565	8,625
Totals.....	2,585	1,296,273	2,567	1,335,243

¹ Duplication exists in this column as some associations market produce as well as handle supplies, some associations market more than one product and some handle many of the supplies listed.

Section 5.—Interprovincial Freight Movements*

Statistics relating to interprovincial freight movements are difficult to collect since there are no controls over, or barriers to, such trade. Provincial freight traffic statistics are available for loadings and unloadings of goods carried by rail, water, pipeline and motor transport.

Details of railway freight movement are confined to tons loaded and unloaded by province and contain a certain amount of import and export of goods shipped by water. The figures given in Table 43, however, do not give a precise measure of total interprovincial freight movement by rail; they indicate only the net interprovincial movement of railway freight, which is but one aspect of that trade. For water-borne traffic, Table 44 shows tonnages of all cargoes unloaded at Canadian ports in both interprovincial and intraprovincial trade, by province of origin. Interprovincial data for oil and gas carried by pipeline are given in the Transportation Chapter at pp. 835-836. Interprovincial and international traffic carried by Canadian registered trucks is shown in Table 45.

* Revised in the Transportation Section, Public Finance and Transportation Division, Dominion Bureau of Statistics.

43.—Railway Revenue Freight Movement, by Province,¹ 1959 and 1960

Province	Loaded		Received from U.S.A. Rail Connections		Totals Carried ²	
	1959	1960	1959	1960	1959	1960
	tons	tons	tons	tons	tons	tons
Newfoundland.....	1,473,152	1,617,786	—	—	1,473,152	1,617,786
Prince Edward Island..	342,368	314,672	—	—	342,368	314,672
Nova Scotia.....	11,282,035	9,714,503	—	—	11,282,035	9,714,503
New Brunswick.....	3,923,839	4,005,173	463,082	447,628	4,386,921	4,452,801
Quebec.....	37,445,678	35,129,593	3,263,829	2,885,926	40,709,507	38,015,519
Ontario.....	42,883,109	39,776,080	19,323,467	19,202,046	62,206,576	58,978,126
Manitoba.....	7,069,952	6,541,697	464,407	379,866	7,534,359	6,921,563
Saskatchewan.....	12,715,636	12,348,813	205,300	151,263	12,920,936	12,500,076
Alberta.....	11,786,847	12,121,465	119,221	188,841	11,906,068	12,310,306
British Columbia.....	10,844,137	11,460,148	1,203,528	1,097,557	12,047,665	12,557,705
Totals.....	139,766,753	133,029,930	25,042,834	24,353,127	164,809,587	157,383,057
	Unloaded		Delivered to U.S.A. Rail Connections		Totals Terminated ²	
	1959	1960	1959	1960	1959	1960
	tons	tons	tons	tons	tons	tons
Newfoundland.....	1,996,997	1,948,860	—	—	1,996,997	1,948,860
Prince Edward Island..	574,806	538,344	—	—	574,806	538,344
Nova Scotia.....	10,533,155	8,959,358	—	—	10,533,155	8,959,358
New Brunswick.....	4,410,217	4,342,251	437,481	458,202	4,847,698	4,800,453
Quebec.....	37,463,126	35,052,159	5,242,067	4,955,133	42,705,193	40,007,292
Ontario.....	51,057,479	47,979,184	20,213,874	20,894,190	71,271,353	68,873,374
Manitoba.....	7,141,358	6,695,373	744,674	747,205	7,886,032	7,442,573
Saskatchewan.....	3,882,761	3,597,231	1,218,063	1,281,966	5,100,824	4,879,197
Alberta.....	6,391,662	6,576,575	29,190	30,903	6,420,852	6,607,475
British Columbia.....	11,880,749	12,222,108	1,979,043	1,981,567	13,859,792	14,203,675
Totals.....	135,332,310	127,911,443	29,864,392	30,349,166	165,196,702	158,260,609

¹ Class I and II railways operating in Canada.² Figures for freight carried and freight terminated do not agree because freight loaded within a certain year is not necessarily all unloaded within the same year.

44.—Tonnage of Cargo Loaded and Unloaded at Canadian Ports in Interprovincial Trade, by Province, 1959 and 1960

Year and Province of Unloading	Province of Loading								Canada
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	B.C. and N.W.T.	
	tons	tons	tons	tons	tons	tons	tons	tons	tons
1959									
Nfld.....	763,017	26,576	971,983	7,201	166,019	27,556	—	69	1,962,421
P.E.I.....	3,435	—	120,520	—	5,796	1,275	—	—	131,026
N.S.....	794,827	13,369	279,365	53,245	535,460	53,557	—	5,317	1,735,140
N.B.....	1,576	35,319	470,137	95,073	330,527	4,447	—	2,055	939,134
Que.....	165,494	52,167	2,290,466	75,423	6,060,194	3,943,092	2,656	15,509	12,605,011
Ont.....	7,957	—	2,100	—	3,130,575	11,156,044	—	132	14,296,808
Man.....	—	—	—	—	211	—	22,684	—	22,895
B.C. and N.W.T.....	342	—	4,314	—	55,942	—	2,477	7,943,140	8,006,215
Totals, 1959	1,736,648	127,431	4,138,885	230,952	10,284,724	15,185,971	27,817	7,966,222	39,698,650
1960									
Nfld.....	966,007	18,356	871,842	51,753	207,634	21,624	—	148	2,137,364
P.E.I.....	493	—	264,840	112,027	14,607	6,497	—	—	398,464
N.S.....	1,041,741	12,698	275,396	174,457	473,194	128,119	—	1,483	2,107,088
N.B.....	512	44,987	487,794	170,173	280,214	16,886	—	6,006	1,006,572
Que.....	191,750	63,414	1,902,343	343,727	5,732,438	4,100,861	4,614	37,055	12,376,202
Ont.....	2,462	—	15,769	—	2,048,595	10,248,815	—	4,629	12,320,270
Man.....	—	—	—	—	84	—	13	121	218
B.C. and N.W.T.....	692	—	4,387	—	35,561	571	—	10,389,746	10,430,957
Totals, 1960	2,203,657	139,455	3,822,371	852,137	8,792,327	14,523,373	4,627	10,439,188	40,777,135

45.—Interprovincial and International Traffic by Canadian Registered Trucks, 1959 and 1960

To— Year and Province	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	United States	Total
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
1959										
From—										
Atlantic Provinces.....	—	46	1	—	—	—	—	—	84	131
Quebec.....	27	—	1,214	2	—	52	—	—	194	1,489
Ontario.....	4	1,183	—	145	15	151	27	—	537	2,062
Manitoba.....	—	2	133	—	113	38	2	—	24	312
Saskatchewan.....	—	1	4	155	—	85	—	—	13	258
Alberta.....	—	47	99	26	118	—	216	50	14	570
British Columbia.....	—	—	9	—	1	166	—	40	72	288
Yukon and Northwest Territories.....	—	—	—	—	—	2	6	—	—	8
United States.....	14	283	460	12	2	39	132	—	—	942
Totals.....	45	1,562	1,920	340	249	533	383	90	938	6,060
1960										
From—										
Atlantic Provinces.....	—	32	5	—	—	—	—	—	134	171
Quebec.....	81	—	1,091	9	—	65	—	—	262	1,508
Ontario.....	9	941	—	119	21	117	17	—	444	1,668
Manitoba.....	—	9	164	—	131	40	4	—	15	363
Saskatchewan.....	—	1	4	171	—	51	1	—	7	235
Alberta.....	—	63	82	29	93	—	215	55	12	549
British Columbia.....	—	1	12	5	4	166	—	47	205	440
Yukon and Northwest Territories.....	—	—	—	—	—	1	18	—	—	19
United States.....	38	268	437	32	7	26	186	—	—	994
Totals.....	128	1,315	1,795	365	256	466	441	102	1,079	5,947

PART II.—GOVERNMENT AIDS TO AND CONTROL OF DOMESTIC TRADE

Section 1.—Controls Affecting the Marketing of Farm Products

Subsection 1.—Control of the Grain Trade

The agencies exercising control of the grain trade in Canada include the Board of Grain Commissioners which, since 1912, has administered the provisions of the Canada Grain Act, and the Canadian Wheat Board which operates under the Canadian Wheat Board Act, 1935.

The Board of Grain Commissioners.*—The Board of Grain Commissioners was established in 1912 under the authority of the Canada Grain Act, 1912 (RSC 1952, cc. 25 and 308 and amendments). It is a quasi-judicial and administrative body of three—a Chief Commissioner and two Commissioners—reporting to the Minister of Agriculture.

The Canada Grain Act has been called the Magna Charta of the Canadian grain trade or, more particularly, of the Canadian farmer, and the Board's chief duties are to ensure that the rights conferred on the different parties by the provisions of the Act are properly protected. Transportation of grain is restricted except from or to licensed elevators, and restriction is placed on the use of established grade names. The Act does not provide for any control or supervision of grain exchanges and the Board of Grain Commissioners has no power or duties in the matter of grain prices.

The Board manages and operates, under semi-public terminal licences, the Canadian Government elevators situated at Moose Jaw and Saskatoon, Sask., Lethbridge, Edmonton and Calgary, Alta., and Prince Rupert, B.C., and leases the Canadian Government elevator at Port Arthur, Ont., to a privately owned grain company. The Executive Offices of the Board and other principal offices are situated at Winnipeg, Man., but branch offices are maintained at numerous points from Montreal in the east to Victoria in the west. Total personnel is approximately 900.

On a fee basis, the Board provides official inspection, grading and weighing of grain, and registration of warehouse receipts. All operators of elevators in Western Canada and of elevators in Eastern Canada that handle western-grown grain for export, as well as all parties operating as grain commission merchants, track buyers of grain, or as grain dealers, are required to be licensed by the Board annually and to file security by bond or otherwise as a guarantee for the performance of all obligations imposed upon them by the Canada Grain Act or by the regulations of the Board.

To protect the rights of the different parties, the Board has jurisdiction to inquire into and is empowered to give direction regarding any matter relating to the grading or weighing of grain; deductions made from grain for dockage; shortages on delivery of grain into or out of elevators; unfair or discriminatory operation of any elevator; refusal or neglect of any person to comply with any provision of the Canada Grain Act; and any other matter arising out of the performance of the duties of the Board.

In the Prairie Provinces the Board maintains four Assistant Commissioners—one in Alberta, two in Saskatchewan and one in Manitoba. These Assistant Commissioners investigate complaints of producers and inspect periodically the country elevators in their respective provinces; all elevators with their equipment and stocks of grain are subject at any time to inspection by officials of the Board.

The Board sets up, annually, Committees on Grain Standards and also appoints Grain Appeal Tribunals to give final decisions in cases where appeals are made against the grading of grain by the Board's inspection officials. To assist in maintaining the uniform quality of the top grades of Red Spring Wheat handled through terminal elevators, the Canada Grain Act provides that wheat of these grades shall be stored with grain of like grade only.

* Prepared by W. J. MacLeod Secretary of the Board of Grain Commissioners for Canada, Winnipeg, Man.

In addition to its duties under the Canada Grain Act, certain other duties are performed by the Board. Under the provisions of the Inland Water Freight Rates Act (RSC 1952, c. 153), the Board maintains records of rates for the carriage of grain from Fort William or Port Arthur, Ont., by lake or river navigation and is empowered to prescribe maximum rates for such carriage. Under the provisions of the Prairie Farm Assistance Act (RSC 1952, c. 213 as amended), the Board collects from licensees under the Canada Grain Act, 1 p.c. of the purchase price of wheat, oats, barley, rye, flax and rapeseed purchased by such licensees.

The Canadian Wheat Board.*—The Canadian Wheat Board was established under the Canadian Wheat Board Act of 1935 for the purpose of "the marketing in an orderly manner, in interprovincial and export trade, of grain grown in Canada". The Board was at first a voluntary Board, that is, farmers had the option of marketing their wheat through it or through the private grain trade. In 1943, under the War Measures Act, the Board was made a compulsory Board, and all wheat going into commercial channels was required to be marketed through it. At the end of the War, the Transitional Powers Act continued the Board as the sole marketing agency for wheat until 1947 when the Canadian Wheat Board Act was amended. The major wartime powers of the Board were continued in the 1947 Act. It is under provisions of this 1947 legislation (RSC 1952, c. 44 and amendments) that the Board is operating today.

The Canadian Wheat Board accomplishes its objective of orderly marketing of grain through regulation and agreement. It owns no grain handling facilities but, by entering into agreements with the owners of these facilities, it attempts to bring about an orderly flow of grain through each of the steps involved in merchandising the grain from the producer to the domestic or overseas buyer.

In the selling of wheat, the Board utilizes the services of shippers and exporters. In its sales operations, the Board endeavours to meet the wishes of overseas buyers and, on occasion, enters into direct contracts. When an exporter completes an export sale, in his capacity as an agent of the Board, he is responsible for the transaction; he completes the transaction with the buyer and settles with the Board for the purchase of the wheat from the Board.

When the commercial storage facilities are inadequate to handle all the grain produced, it is necessary for the Board to regulate the flow of grain from the producer to these forward positions. The first step is accomplished by the use of producer's delivery permits issued annually by The Canadian Wheat Board. Every delivery of grain made to country elevators by a producer is entered in his permit book. By regulating the amount of grain delivered by the producer to the country elevator by the use of a quota system, and by apportioning shipping orders to country elevators according to the needs created by sales commitments, the Wheat Board regulates the amount of grain coming into the marketing channel.

The next step is the handling of the grain by the country elevator. The maximum charges for the handling and storing of the grain are set by the Board of Grain Commissioners, but the actual charges are subject to negotiation between the elevator companies and the Wheat Board.

The third step in the marketing process—transporting the grain from the country elevators to the large terminal elevators in Eastern Canada, Churchill or on the West Coast—is carried out by the railways. The Wheat Board determines the kinds and grades of grain that are required at the different terminal destinations to meet its sales commitments and informs the elevator companies and the railways of these needs. The maximum tariffs are set by an agreement between the railways and the Government of Canada.

The fourth major step—storing and handling of the grain at terminal elevators—is done in privately or co-operatively owned elevators. Maximum charges are established for this service by the Board of Grain Commissioners.

* Prepared by C. B. Davidson, Executive Assistant, The Canadian Wheat Board, Winnipeg, Man.

In the case of oats and barley, the Board's operations are less extensive than those relating to wheat. These two grains are sold in store positions at the terminal elevators at Fort William-Port Arthur and Vancouver. Oats and barley are marketed either on a straight cash basis at prices quoted daily by the Board or on the basis of exchange of futures concluded through the facilities of the Winnipeg Grain Exchange. The Board controls the movement of coarse grains to the Lakehead. The private trade is responsible for the movement of oats and barley from Lakehead or Vancouver positions.

The producer receives payment for his wheat, oats and barley in two or three stages. An initial payment price is established early in the crop year by Order in Council. The initial payment price less the cost of handling grain at the local elevator and the transportation costs to the Lakehead or Vancouver is the initial price received by the producer. This price is a guaranteed floor price in that if the Wheat Board, in selling the grain, does not realize this price and the necessary marketing costs, the deficit is borne by the Federal Treasury. However, with very few exceptions, the Wheat Board has operated without financial aid from the Federal Treasury.

After the end of the crop year, but prior to the final payment being made, if the Wheat Board can confidently foresee a surplus accumulating and if authorized by Order in Council, an interim payment is made to producers. This interim payment is the same amount per bushel to all producers of the same grade of grain. When the Board has sold all the grain or otherwise disposed of it in accordance with the Canadian Wheat Board Act, the Board, if authorized by Order in Council, makes a final payment to producers.

Under the Prairie Grain Advance Payments Act, administered by the Board, producers may receive, through their elevator agents, cash advances on farm-stored grain in accordance with a prescribed formula. The purpose of this legislation is to make cash available to producers pending delivery of their grain under delivery quotas established by the Board. Cash advances are interest-free as far as producers are concerned.

Western Canadian producers receive the price for their grain that the Wheat Board receives, less its operating costs including carrying charge, and the general level of prices received by the Board is determined by competitive conditions in world markets. The only subsidy received by the farmer in the Canadian wheat marketing system is the part payment of storage costs for wheat made by the Government of Canada. Under provisions of the Temporary Wheat Reserves Act, the Minister of Finance, out of the Consolidated Revenue Fund, pays to the Wheat Board the storage costs on wheat in storage at the end of the crop year in excess of 178,000,000 bu.

Subsection 2.—Controls Over Farm Products Other Than Grain*

With the growing complexity of agricultural marketing caused by the fact that the producer is more and more becoming a specialist and produces more for marketing off the farm than for his own needs, a substantial and continuing change in the approach to marketing problems is evident.

With the exception of tobacco, little or no attempt at production control has been introduced in Canada, although in some countries this also forms part of a broad program of market control. The methods of control might be summarized as follows, although some of those mentioned may be combined in certain operations: (1) producers may organize co-operative marketing agencies; (2) producers may establish compulsory marketing boards to bargain with groups buying the product for processing or further sale; (3) producers may establish compulsory marketing boards to direct the flow of product and bargain on price; (4) producers may request the Federal Government to establish a government marketing board; and/or (5) producers may request intervention in the pricing system through an offer by the Government to either assist in financing the orderly marketing of the product or in the support of the price of the product in the marketplace.

* Prepared in the Economics Division of the Administration Branch, Department of Agriculture, Ottawa. A more detailed statement on this subject, including the history of developments leading to the present situation, appears in the 1960 Canada Year Book, pp. 961-966.

The Government of Canada and provincial governments have, through legislation and in other ways, given marketing aids such as those related to research, education, information, inspection, grading and many other service measures of this type, designed to assist in making adjustments in marketing within agriculture and between agriculture and the remainder of the economy.

There exists in Canada today considerable legislation at the federal, provincial and municipal levels which gives government agencies and farmers the power to take measures for controlling the marketing of farm products. Legislation relating to grain marketing is dealt with in Subsection 1, pp. 903-905, and an attempt is made here to cover in a general way some of the other types of legislation, with particular reference to the Agricultural Products Co-operative Marketing Act, the Agricultural Products Marketing Act and the Agricultural Stabilization Act.

General Marketing Controls.—At the municipal level, many cities and towns have controls with respect to the sale of foods in certain areas or with respect to health standards. For example, most municipalities have some form of health regulation concerning milk being sold within their boundaries. This is often extended to licensing for the purpose of assuring sanitary standards on the farms where the milk originates. Similarly, zoning by-laws may not only control the areas where commercial merchandising generally can take place, but also state that public markets where fruit and vegetables and other goods are sold may operate only under fairly strict supervision of the municipality.

With respect to provincial government controls, most of the provinces enacted milk control legislation before 1940. Most of them finance these milk-control agencies out of public funds, others finance through the collection of licence fees and assessments from those engaged in the fluid milk industry, and some combine the two methods. Most milk-control agencies have authority to carry out some system of licensing which provides for the revocation of such licences if those engaged in the fluid milk business do not conform with the orders of the milk control board.

In all provinces with such boards, the milk control board sets the minimum price which distributors in specified markets may pay producers for Class I milk, that is, milk which is actually sold for fluid consumption. In a number of provinces this price is based on a formula. Most provinces also set either minimum or fixed wholesale and retail prices for milk. However, in Manitoba a maximum and not a minimum retail price is set, and in British Columbia and Ontario no control is exercised over milk prices at the retail level. In these three provinces some degree of price competition between store and home delivery sales has developed.

The powers given to or requirements made by milk control boards include: (1) authority to inquire into all matters pertaining to the fluid milk industry, to define market areas, to arbitrate disputes, to examine the books and records of those engaged in the industry, to issue and revoke licences, and to establish a price for milk; and (2) authority to require a bond from distributors, periodic reports from distributors, payments to be made to producers by a certain date each month, distributors to give statements to suppliers, distributors to give notice before ceasing to accept milk from any producer, producers to give notice before ceasing to deliver milk to any distributor, and the prohibition of distributors requiring capital investment from producers.

Thus fluid milk controls are not only widespread but also numerous. They are generally considered to be administered in the public interest as well as in the interest of those who have regular opportunities to appear before the boards in connection with requests for price changes.

Federally, the Food and Drug Directorate of the Department of National Health and Welfare has wide control over the content of foods sold. The Department of Agriculture establishes grades or quality standards for various foods and exercises some control over

size and type of packages and containers used in food preparation. The Weights and Measures Division of the Department of Trade and Commerce also exercises controls in its sphere.

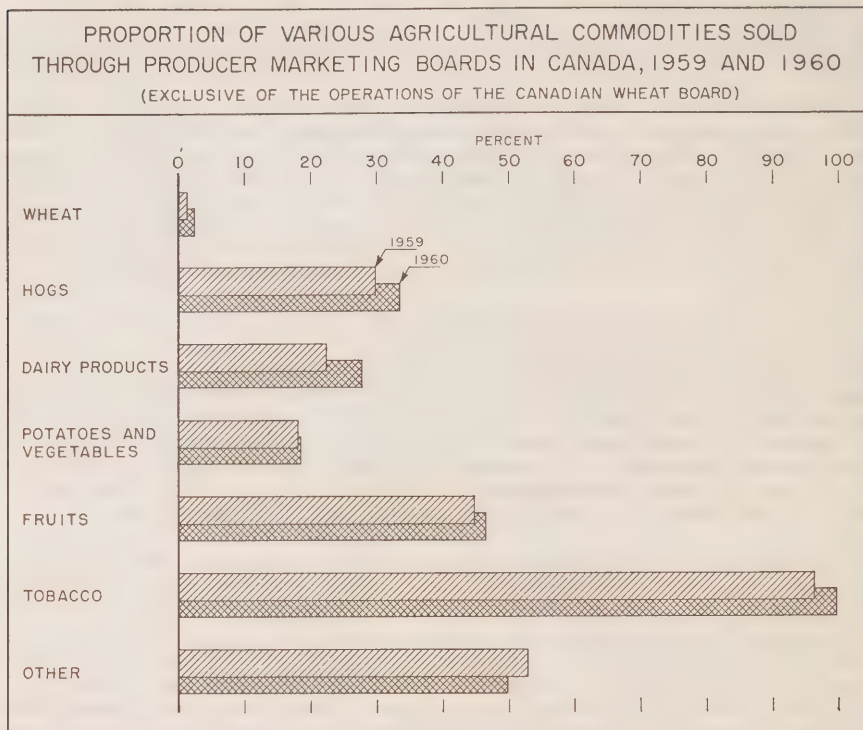
The Agricultural Products Co-operative Marketing Act.—In the late 1930's, the Federal Government decided to assist orderly marketing by encouraging the establishment of pools which would give to the producer the maximum sales return for his product less a maximum margin for handling expenses agreed upon in advance. Thus the Agricultural Products Co-operative Marketing Act and the Wheat Co-operative Marketing Act were passed in 1939. The latter was used in one year only but the Agricultural Products Co-operative Marketing Act, which covers the marketing of all agricultural products except wheat, has been used to a greater or lesser degree from time to time during the intervening years.

The purpose of this Act is to aid farmers in pooling the returns from sale of their products by guaranteeing initial payments and thus assisting in the orderly marketing of the product. The Government will undertake to guarantee a certain minimum initial payment to the producer at the time of delivery of the product including a margin for handling, sales returns to be made to the producer on a co-operative plan. The guaranteed initial payment may be up to a maximum of 80 p.c. of the average price for the previous three years, the exact percentage to be recommended by the Minister of Agriculture who enters into an agreement with the selling agency for the product. The payment to the producer is to be made through the sales agency on a graded basis at the time of delivery of the product.

Agreements under this Act have been made with respect to the marketing of maple products, honey, onions, potatoes, cheddar cheese, apples, peaches, apricots, cherries, oats, barley, flax, rye, corn, fox and mink pelts, and the following seeds: alfalfa, crested wheat grass, brome grass, slender wheat grass, western rye grass, timothy, red clover, alsike clover, sweet clover, creeping red fescue, meadow fescue, and peas. Thus far the Government of Canada has suffered losses under this Act only with respect to fox pelts and potatoes. This experience indicates that any service to agriculture rendered by this Act has been at relatively small expense to the taxpayers of Canada except for minor administrative expenses, most of which have been taken care of as part of the day-to-day administration of the Department of Agriculture.

The Agricultural Products Marketing Act.—Following the withdrawal of wartime powers of the Federal Government, the Agricultural Products Marketing Act of 1949 was enacted to provide delegation for like powers to those established for marketing boards within a province for the purposes of interprovincial and export trade. A Supreme Court judgment in January 1952 cleared the validity of the Agricultural Products Marketing Act but left some doubt with respect to how licences, levies or other charges could be made by marketing boards beyond the extent of immediate administrative expenses without some approval by the Federal Government in its constitutional field of indirect taxation. In April 1957, following a further Supreme Court judgment in respect to Ontario legislation, an amendment to the Federal Agricultural Products Marketing Act vested in the Governor in Council the right to authorize local boards to "fix, impose and collect levies or charges from persons engaged in the production or marketing of the whole or any part of any agricultural product and for such purpose to classify such persons into groups and fix the levies or charges payable by the members of the different groups in different amounts, to use such levies or charges for the purposes of such board or agency, including the creation of reserves, and the payment of expenses and losses resulting from the sale or disposal of any such agricultural product, and the equalization or adjustment among producers of any agricultural product of moneys realized from the sale thereof during such period or periods of time as the board or agency may determine".

There are at present 76 such marketing boards organized in Canada, 60 p.c. of which are in the Province of Quebec and 21 p.c. in Ontario; all other provinces with the exception of Newfoundland have one or more boards.



The annual statistical report prepared by the Economics Division of the Department of Agriculture in relation to these boards indicates that about one-sixth of the farm cash income in Canada in 1960 was received from sales made under the control of provincial marketing board plans, including the following commodities: seed corn, potatoes, other vegetables, sugar beets, tobacco, hogs, certain dairy products, fruits, wool, honey, white beans, maple products, pulpwood, wheat and soybeans. As at Mar. 15, 1962, 35 of these provincial boards had received an extension of powers for purposes of interprovincial and export trade from the Federal Government. Three had received authority to collect levies in excess of administrative expenses.

The Agricultural Products Marketing Act does not give the local or provincial marketing board any greater control over agencies outside the province than is possible through the control of the commodity by the board and whatever contractual arrangements it may make with such agencies outside the province. It does make it possible, however, for marketing boards to give groups within a province complete marketing control over any commodity produced in that province, or any area of that province which may be defined.

The Agricultural Stabilization Act.—The functions of this Act, passed in 1958, and its administration are outlined in the Agriculture Chapter, pp. 388-389. Under the Act, all price support levels must be related to a price formula based on the most recent ten-year average of market prices for the product concerned. In addition, the Agricultural Stabilization Board, unless the Government sets a higher support level, must support the prices of nine key commodities at not less than 80 p.c. of the ten-year average market price.

The named commodities are: butter, cheese, eggs, cattle, hogs, sheep, wheat, oats and barley (for the latter three, the support applies only to grains produced outside the prairie areas designated under the Canadian Wheat Board Act). Other commodities can be supported at such percentage of the ten-year average market price as may be approved by the Government from time to time. Prices established for the nine named commodities must be announced so that they can apply for 12 months from the effective date. Support of designated commodities is also normally for a 12-month period.

In the first year of operation of the Agricultural Stabilization Board, 21 commodities were under price support. In the year ended Mar. 31, 1960, 18 commodities were under price support and in each of the two following years, 17 commodities. Each year support prices for most of these commodities were set at 80 p.c. of the ten-year average or higher. The net cost of support in the fiscal year 1959-60 was approximately \$60,000,000 and about \$51,000,000 in 1960-61.

The Agricultural Stabilization Board may support the price of products in any one or more of three ways: (1) an offer to purchase by the Board; (2) underwriting the market through producer guarantees, commonly called the "deficiency payment" method; or (3) making such payment for the benefit of producers as may be authorized for the purpose of stabilizing the price of an agricultural commodity. The third method is new under the Agricultural Stabilization Act. All methods have been used during the first years of operation of the Act, although recently there has been some tendency to use the so-called deficiency payment method to a greater degree.

Section 2.—Combinations in Restraint of Trade*

The purpose of Canadian anti-combines legislation is to assist in maintaining free and open competition as a prime stimulus to the achievement of maximum production, distribution and employment in a system of free enterprise. To this end, the legislation seeks to eliminate certain practices in restraint of trade, which serve to prevent the nation's economic resources from being most effectively used for the advantage of all citizens.

By amendments which came into force on Aug. 10, 1960 (SC 1960, c. 45), all the provisions of the anti-combines legislation which previously had been divided between the Combines Investigation Act (RSC 1952, c. 314) and the Criminal Code were amended and consolidated in the Act. The substantive provisions now are contained in Sects. 2, 32, 33, 33A, 33B, 33C and 34 of the Combines Investigation Act. The Act was enacted in 1923 and was amended extensively in 1935, 1937, 1946, 1949, 1951 and 1952 as well as in 1960.

Sec. 32, generally speaking, forbids in Subsect. (1) combinations that prevent or lessen "unduly" competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of an article of trade or commerce or in the price of insurance. Subsect. (1) derives from Sec. 411 of the Criminal Code which was enacted originally in 1889. While Subsect. (2) provides that no person shall be convicted for participation in an arrangement relating only to such matters as the exchange of statistics or the defining of product standards, etc., Subsect. (3) provides that Subsect. (2) does not apply if the arrangement has lessened or is likely to lessen competition unduly in respect of prices, quantity or quality of production, markets or customers or channels of distribution, or if the arrangement "has restricted or is likely to restrict any person from entering into or expanding a business in a trade or industry". Subsect. (4) provides that, subject to Subsect. (5), no person shall be convicted for participation in an arrangement which relates only to the export trade. Subsect. (5) provides that Subsect. (4) does not apply if the arrangement has had or is likely to have harmful effects on the volume of export trade or on the businesses of Canadian competitors or on domestic consumers.

Sects. 2 and 33 make it an offence to participate in a merger which has or is likely to have the effect of lessening competition to the detriment or against the interest of the

* Revised by D. W. H. Henry, Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

public. These Sections also make it an offence to participate in a monopoly which has been operated or is likely to be operated to the detriment or against the interest of the public.

Sect. 33A deals with what are commonly called "price discrimination" and "predatory price cutting". It provides that a supplier may not make a practice of discriminating among those of his trade customers who come into competition with one another by giving one a preferred price which is not available to another if the second is willing to buy in like quantities and qualities as the first; and it also forbids a supplier from selling at prices lower in one locality than in another, or unreasonably low anywhere, if the effect or tendency of such policy is to lessen competition substantially or eliminate competitors or the policy is designed to have such effect.

Sect. 33B provides that where a supplier grants advertising or display allowances to competing trade customers he must grant them in proportion to the purchases of such customers; any services he exacts in return must be such that his different types of customers are able to perform; and if such customers are required to incur expenses to earn such allowances, such expenses also must be proportionate to their purchases.

Sect. 33C makes it an offence for any person, for the purpose of promoting the sale or use of an article, to make any materially misleading representation to the public concerning the price at which such or like articles have been, will be or are ordinarily sold.

Sect. 34 prohibits a supplier of goods from prescribing the prices at which they are to be resold by wholesalers or retailers or from cutting off supplies to a merchant because of the merchant's failure or refusal to abide by such prices, i.e., the practice of "resale price maintenance". The Section also provides that it shall not be inferred that a person practised resale price maintenance simply because he refused, or counselled the refusal of supplies to a merchant if there was reasonable cause to believe and the supplier did believe that the merchant was making a practice of using articles of such supplier as "loss-leaders" or as bait advertising or was making a practice of engaging in misleading advertising in respect of such articles or of not providing services that purchasers of such articles might reasonably expect.

The Act provides for a Director who is responsible for investigating combines and other restrictive practices, and a Commission (the Restrictive Trade Practices Commission) which is responsible for appraising the evidence submitted to it by the Director and the parties under investigation, and for making a report to the Minister. When there are reasonable grounds for believing that a forbidden practice is engaged in, the Director may obtain from the Commission authorization to examine witnesses, search premises, or require written returns. After examining all the information available, if the Director believes that it proves the existence of a forbidden practice, he submits a statement of the evidence to the Commission and to the parties believed to be responsible for the practice. The Commission then sets a time and place at which it hears argument on behalf of the Director in support of his statement, and hears argument and receives evidence on behalf of any persons against whom allegations have been made in the statement. Following this hearing, the Commission prepares and submits a report to the Minister, ordinarily required to be published within thirty days.

The Act also provides for general inquiries into restraints of trade which, while not forbidden or punishable, may affect the public interest. It further provides in Sect. 31 that the courts, including the Exchequer Court of Canada, in addition to imposing punishment for a contravention of the legislation, may make an order restraining persons from embarking on, continuing or repeating a contravention or directing the dissolution of a merger or monopoly as the case may be. Application also may be made to the courts for such an order in lieu of prosecuting and convicting for a contravention of the legislation. By virtue of the 1960 amendments, prosecutions for offences against the substantive provisions of the legislation (other than Sect. 33C which is punishable only on summary conviction) may be taken either in the provincial courts or with the consent of the accused in the Exchequer Court of Canada. The amendment conferring jurisdiction on the Exchequer Court came into force on Dec. 1, 1960.

In the years 1956-61, the following reports of inquiries under the legislation have been published:—

- (1) Retail Distribution and Sale of Coal in Winnipeg.
- (2) Manufacture, Distribution and Sale of Quilted Goods, Quilting Materials and Related Products.
- (3) Manufacture, Distribution and Sale of Boxboard Grades of Paperboard.
- (4) Production, Purchase and Sale of Flue-Cured Tobacco in Ontario.
- (5) The Sugar Industry in Western Canada and a Proposed Merger of Sugar Companies.
- (6) Manufacture, Distribution and Sale of Metal Culverts and Related Products.
- (7) Purchase of Pulpwood in Certain Districts in Eastern Canada.
- (8) Manufacture, Distribution and Sale of Yeast.
- (9) Production, Distribution and Sale of Zinc Oxide.
- (10) Wholesale Trade in Cigarettes and Confectionery in the Edmonton District.
- (11) Study of Certain Discriminatory Pricing Practices in the Grocery Trade.
- (12) Manufacture, Distribution and Sale of Ammunition in Canada.
- (13) Distribution and Sale of Electrical Construction Materials and Equipment in Ontario.
- (14) Sale and Distribution of Surgical Rubber Gloves and Certain Other Surgical Supplies.
- (15) The Sugar Industry in Eastern Canada.
- (16) Alleged Attempts at Resale Price Maintenance in the Distribution and Sale of Gasoline in the Toronto Area.
- (17) Manufacture, Distribution and Sale of Specialty Bags and Related Products.
- (18) Automobile Insurance in Canada.
- (19) Distribution and Sale of Coal in Sault Ste. Marie, Ontario.
- (20) Production and Supply of Newspapers in the City of Vancouver and Elsewhere in the Province of British Columbia.
- (21) Manufacture, Distribution and Sale of Transparent Packaging Products and Related Products.
- (22) Manufacture, Distribution, Supply and Sale of Belts.
- (23) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—Supertest Petroleum Corporation, Limited).
- (24) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—The British American Oil Company Limited).
- (25) Distribution and Sale of Gasoline in the Toronto Area (Alleged Price Discrimination—Texaco Canada Limited).
- (26) Alleged Attempts at Resale Price Maintenance in the Distribution and Sale of Cameras and Related Products (Arrow Photographic Equipment Limited).
- (27) Meat Packing Industry and the Acquisition of Wilsil Limited and Calgary Packers Limited by Canada Packers Limited.
- (28) Alleged Attempts at Resale Price Maintenance in the Distribution and Sale of Cameras and Related Products (Garlick Films Limited).

These reports and copies of the Annual Reports under the Act may be obtained from the Queen's Printer or the office of the Director of Investigation and Research, Combines Investigation Act, Department of Justice, Ottawa.

Section 3.—Control and Sale of Alcoholic Beverages

The retail sale of alcoholic beverages in Canada is controlled by provincial and territorial government liquor control authorities. Alcoholic beverages are sold directly by most of these liquor control authorities to the consumer or to licensees for resale. However, in some provinces beer and wine are sold directly by breweries and wineries to consumers or to licensees for resale. During the year ended Mar. 31, 1961, provincial government liquor control authorities operated 898 retail stores.

Table 1 shows revenue from administration of liquor control by provincial and territorial governments. Details are given in DBS report, *The Control and Sale of Alcoholic Beverages in Canada* (Catalogue No. 63-202).

1.—Provincial Revenue from Administration of Liquor Control, Years Ended Mar. 31, 1959-61

NOTE.—Figures include revenue collected directly by the provincial and territorial governments as well as revenue of the liquor authorities, but exclude revenue resulting from a general retail sales tax on alcoholic beverages levied by seven provinces.

Year and Province or Territory	Net Income from Sales ¹	Sales Tax	Licences and Permits ²	Fines and Confiscations ²	Commission on General Sales Tax Collections	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1959						
Newfoundland.....	2,276	...	1,652 ³	25	5	3,958
Prince Edward Island...	1,018	315	30	16	...	1,379
Nova Scotia.....	11,744	...	289	50	...	12,083
New Brunswick.....	7,446	...	16	32	19	7,513
Quebec.....	31,422	1,979	12,989	364	67	46,821
Ontario.....	53,443	...	19,537	165	...	73,145
Manitoba.....	8,818	...	2,554	88	...	11,460
Saskatchewan.....	12,377	...	23	107	53	12,560
Alberta.....	18,712	...	863	237	...	19,812
British Columbia.....	26,594	...	442	..	102	27,138
Yukon Territory.....	730	74	9	9	...	822
Northwest Territories..	512	...	21	—	...	533
Canada, 1959.....	175,092	2,368	38,425	1,093	246	217,224
1960						
Newfoundland.....	2,483	...	1,868 ³	25	4	4,380
Prince Edward Island...	1,192	359	35	15	...	1,601
Nova Scotia.....	11,474	...	317	59	35	11,885
New Brunswick.....	7,858	...	16	38	21	7,933
Quebec.....	33,426	1,990	13,906	335	68	49,725
Ontario.....	53,128	...	24,645	257	...	78,030
Manitoba.....	10,088	...	2,667	125	...	12,880
Saskatchewan.....	13,070	...	20	108	54	13,252
Alberta.....	18,869	...	923	288	...	20,080
British Columbia.....	26,956	...	463	..	105	27,524
Yukon Territory.....	807	76	7	7	...	897
Northwest Territories..	589	...	53	—	...	642
Canada, 1960.....	179,940	2,425	44,920	1,257	287	228,829
1961						
Newfoundland.....	2,377	...	2,000 ³	26	4	4,403
Prince Edward Island...	1,305	392	33	15	4	1,745
Nova Scotia.....	11,710	...	294	61	4	12,065
New Brunswick.....	8,220	...	16	33	4	8,269
Quebec.....	32,583	2,010	14,144	326	4	49,063
Ontario.....	55,269	...	26,373	145	4	81,787
Manitoba.....	11,657	...	2,752	177	4	14,586
Saskatchewan.....	13,673	...	19	148	4	13,840
Alberta.....	19,940	...	934	332	4	21,206
British Columbia.....	27,898	...	514	..	4	28,412
Yukon Territory.....	861	79	10	9	4	959
Northwest Territories..	670	...	57	—	4	727
Canada, 1961.....	186,163	2,481	47,146	1,272	4	237,062

¹ After provision for depreciation on fixed assets and capital expenditure met out of operating income. ² Before deducting any payments to municipalities out of liquor control authority revenue. ³ Includes \$1,561,000 in 1959, \$1,769,000 in 1960 and \$1,897,000 in 1961 commission on beer sold direct from local breweries to the public through licensed outlets under controlled prices.

⁴ Included with "Net Income from Sales".

Specified revenue of the Government of Canada from alcoholic beverages comprising excise duties, excise taxes, customs duties and certain fees and licences in that connection are shown in Table 2.

2.—Specified Revenue of the Federal Government from Alcoholic Beverages, Years Ended Mar. 31, 1957-61

NOTE.—Figures exclude revenue from the general sales tax which is not available by commodities.

Nature of Levy	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
On Spirits	114,780	120,279	125,901	132,240	139,823
Excise duty ¹	70,341	83,653	96,551	102,354	108,502
Licences.....	8	7	7	7	8
Import duty ¹	44,431	36,619	29,343	29,879	31,313
On Beer	83,221	88,419	83,243	90,873	91,165
Excise duty.....	83,078	88,226	83,058	90,704	90,971
Beer licences.....	4	3	3	3	3
Import duty.....	139	190	182	166	191
On Wine	3,881	4,170	4,609	4,656	4,920
Excise taxes.....	2,618	2,744	3,140	3,026	3,224
Import duty.....	1,263	1,426	1,469	1,660	1,696
Totals ²	201,882	212,868	213,753	227,799	235,908

¹ Collections on liquor imported for blending purposes are included with import duty until July 1, 1957.

² Drawbacks and refunds of duties and taxes have not been deducted.

Value of Sales of Alcoholic Beverages.—The figures in Table 3 do not always represent the final retail selling price of alcoholic beverages to the consumer because, when sold to licensees, only the selling price to licensees is known.

3.—Value of Sales of Alcoholic Beverages, Years Ended Mar. 31, 1959-61

Province or Territory	Spirits			Wines		
	1959	1960	1961	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	5,279	5,602	5,662	490	541	574
Prince Edward Island.....	2,215	2,470	2,609	168	185	234
Nova Scotia.....	15,616	15,362	15,899	2,328	2,452	2,564
New Brunswick.....	10,521	11,120	11,738	1,903	2,062	2,154
Quebec.....	81,818	86,873	87,635	14,151	14,972	15,737
Ontario.....	158,284	155,557	163,454	19,851	19,356	20,669
Manitoba.....	19,900	21,240	21,885	2,399	2,614	2,716
Saskatchewan.....	17,435	18,278	18,412	2,347	2,549	2,851
Alberta.....	31,591	33,444	35,034	2,884	3,135	3,639
British Columbia.....	49,868	51,227	52,359	4,616	4,971	5,520
Yukon Territory.....	955	968	985	81	96	111
Northwest Territories.....	680	788	790	57	61	74
Canada	394,162	402,929	416,462	51,275	52,994	56,843
	Beer			Totals		
	1959	1960	1961	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	9,236	10,287	10,700	15,005	16,430	16,936
Prince Edward Island.....	1,083	1,298	1,467	3,466	3,953	4,310
Nova Scotia.....	14,336	14,811	15,551	32,280	32,625	34,014
New Brunswick.....	8,867	9,715	10,354	21,291	22,897	24,246
Quebec.....	98,574	105,418	106,052	194,543	207,293	209,424
Ontario.....	147,953	175,298	178,744	326,088	350,211	360,867
Manitoba.....	24,390	26,691	28,655	46,689	50,545	53,256
Saskatchewan.....	22,313	22,831	25,242	42,095	43,658	46,505
Alberta.....	32,209	32,763	33,610	66,684	69,342	72,283
British Columbia.....	40,167	40,112	41,477	94,651	96,310	99,356
Yukon Territory.....	990	1,109	1,241	2,026	2,173	2,337
Northwest Territories.....	550	656	736	1,287	1,505	1,600
Canada	400,668	441,019	451,829	846,195	896,942	925,134

Section 4.—Miscellaneous Aids or Controls

Subsection 1.—Domestic Commerce Service*

Government Aid to Small Business.—The Small Business Branch of the Department of Trade and Commerce provides liaison between the Federal Government and small business. It is a contact point for businessmen, either individually or through their associations, to explain their problems to the Government. These problems are studied and, in consultation with other departments, recommendations are made where appropriate.

The Small Business Branch provides information and help to businessmen on many aspects of business operation including such matters as the establishment of various types of businesses, sources of capital, types of business organization, production and marketing, government procurement, managerial techniques, and laws and regulations, including patents, copyrights, taxes, tariffs and unfair trade practices.

The Branch prepares and distributes information of value to small business generally. Publications available include a manual entitled *Selling to the Canadian Government*, which outlines the kinds of requirements and the procurement procedures of the Federal Government; a booklet entitled *Management Education*, which describes the management courses offered by Canadian universities to business executives and supervisors; and a booklet entitled *Federal Services for Business*, which outlines the various services available to businessmen from the Federal Government.

Industrial Promotion.—The Industrial Promotion Branch of the Department of Trade and Commerce assists manufacturers, processors and assorted service industries to expand operations in Canada. It assists Canadian manufacturers to diversify their production, and assists foreign companies and individuals interested in negotiating a manufacturing arrangement with a Canadian firm or in establishing a new branch plant in Canada. In the pursuit of these objectives, the Branch works closely with other federal agencies and with provincial, regional and municipal bodies, and also maintains liaison with private development agencies such as railways, power companies, Boards of Trade, Chambers of Commerce, and business organizations and associations.

To encourage new or increased Canadian production, the Branch provides manufacturers with information on production and marketing opportunities within the domestic market. In this regard, a program of industry studies has been developed to investigate areas of opportunities for industrial expansion and a large number of import surveys have been undertaken to obtain information about Canadian market possibilities. In addition, the Branch is equipped to assist Canadian businessmen with information on such matters as licensing arrangements, taxation, tariffs, financing and government rules and regulations. Branch publications to assist in industrial expansion include the *Industrial Promotion Bulletin* and a series of manuals on *Doing Business in Canada*.

Product Design.—The National Design Branch of the Department of Trade and Commerce administers the programs of the National Design Council. Together, the Branch and the Council have developed a number of programs to assist Canadian industry on all aspects of design and to create a greater interest and awareness among businessmen and the general public in the importance of design in the successful production and marketing of goods. A national design index illustrating and describing products of superior Canadian design is maintained. This index is a reference catalogue for buyers and the general public and is available in Canada and various centres abroad. To display products from the index, national and regional exhibitions are held in co-operation with industry. A permanent place of exhibition will be opened in 1962.

The National Design Branch organizes seminars and workshops where manufacturers and designers may meet to discuss design and its relevance to particular products and

* The information on Government Aid to Small Business, Industrial Promotion, Product Design and Capital Cost Allowance for New Products was prepared by the Director of the Trade Publicity Branch of the Department of Trade and Commerce and the material on Trade Standards by the Director of the Standards Branch of the same Department.

industries. Scholarships and grants for institutional and specialized training in design and for research in industrial design are awarded on a competitive basis and are tenable in Canada and abroad. Studies are conducted to ascertain the present and emergent needs of industry in the design field and the facilities, processes and techniques available to the manufacturer and, in this connection, a survey of secondary industry is being made to establish the manner in which product design is now carried out and the extent to which professional designers are employed in Canadian industry.

A national register of practicing designers and design consultants has been installed by the Branch so that manufacturers seeking assistance to product development and in packaging may be brought into contact with those best equipped to supply expert help. Steps have also been taken to establish a reference centre and information service to cover the whole field of international design.

Capital Cost Allowance for New Products.—The Depreciation Certification Division of the Department of Trade and Commerce administers the special capital cost allowance program for new products, announced in the Budget of December 1960. The aim of the program is to encourage the expansion and diversification of Canadian industry and to improve employment opportunities, particularly in surplus-manpower areas. In brief, the program permits faster write-off of assets than is allowed under the normal depreciation regulations, thus providing taxpayers with additional working capital.

There are two parts to the program. Under the first, a firm is eligible for the special allowance if it manufactures a product not ordinarily produced in Canada. Under the second, even if a product is made in Canada, a firm may be eligible for double depreciation if it is located in a designated surplus-manpower area and the product is not ordinarily produced in that particular area.

In the first year of operation of the program a large number of applications were reviewed and approvals given for special capital cost allowances covering such products as new types of steel, chemicals, electronics, plastics, foods, paper and textiles.

Trade Standards.—The Standards Branch of the Department of Trade and Commerce consolidates under one Director the administration of the Electricity Inspection Act, the Gas Inspection Act, the Precious Metals Marking Act, the Weights and Measures Act, and the National Trade Mark and True Labelling Act.

Commodity Standards.—On Nov. 26, 1949, Parliament passed the National Trade Mark and True Labelling Act (RSC 1952, c. 191) which provides a framework for the development of the National Standard and true labelling in order to circumvent public deception in advertising. In brief, the use of the National Standard is voluntary and compliance with commodity standards affects only those manufacturers who desire to use the national trade mark. This is exemplified in the National Trade Mark Garment Sizing Regulations which were passed on Mar. 16, 1961. In addition, where manufacturers descriptively label any commodity or container, it must be labelled accurately to avoid public deception. The regulation applying to the labelling of fur garments, for example, has been established as a code of fair practice throughout the merchandising field.

Under the terms of the Precious Metals Marking Act, 1946 (RSC 1952, c. 215), commodities composed of gold, silver, platinum or palladium may be marked with a quality mark describing accurately the quality of the metal. Where such mark is used, a trade mark registered in Canada, or for which application for registration has been made, must also be applied. Gold-plated or silver-plated articles may also be marked under certain conditions outlined in the Act. The inspection staff of the Standards Branch is engaged in the examination of advertising matter, in verifying the quality of articles offered for sale, and in checking the marks applied.

Weights and Measures.—The Weights and Measures Act (RSC 1952, c. 292) prescribes the legal standards of weight and measure for use in Canada. The Act requires control of the type of all weighing and measuring devices used for commercial purposes and their periodic verification and surveillance directed toward the elimination of sales by

short weight or short measure. The number of inspections made in the calendar year 1961 was 500,737 compared with 493,700 in 1960. The more important inspections comprised the following: weighing machines including scales of all kinds, 235,421; measuring machines for liquids, 122,949; weights, 135,024; other measures 7,342. Total expenditure was \$1,215,510 in the year ended Mar. 31, 1961, compared with \$1,111,276 in the previous fiscal year and total revenue \$1,081,603 compared with \$1,036,860.

Electricity and Gas Inspection.—Responsibilities of the Standards Branch under the Electricity Inspection Act (RSC 1952, c. 94) and the Gas Inspection Act (RSC 1952, c. 129) comprise the testing and stamping of every electricity and gas meter used throughout Canada for billing purposes, the object being to ensure the correct measurement of all electricity and gas sold. Canada is divided into 21 districts for administration of the two Acts and staff numbers 199. During the year ended Mar. 31, 1961, 1,071,835 electricity and gas meters were tested as compared with 1,097,124 in the preceding year. Revenue derived from the testing amounted to \$859,367 and expenditure to \$1,025,203.

4.—Electricity and Gas Meter Registrations, 1951-60

Year	Electricity Meters	Gas Meters			
		Manufac- tured Gas	Natural Gas	Petroleum Gas	Total
	No.	No.	No.	No.	No.
1951.....	3,591,056	609,062	264,154	68	873,289 ¹
1952.....	3,779,868	599,140	277,248	1,270	877,663 ¹
1953.....	3,968,020	593,698	298,166	429	892,297 ¹
1954.....	4,175,534	420,432	486,768	532	907,736 ¹
1955.....	4,380,889	416,338	507,875	3,147	927,364 ¹
1956.....	4,571,391	350,558	599,633	4,843	955,034
1957.....	4,748,636	67,726	943,783	4,570	1,016,079
1958.....	4,941,687	35,967	1,069,892	5,101	1,110,960
1959.....	5,157,495	32,799	1,162,678	4,266	1,199,743
1960.....	5,317,704	25,041	1,232,215	12,109	1,269,365

¹ Includes five acetylene meters in 1951 and 1952 and four in 1953, 1954 and 1955.

Subsection 2.—Patents, Copyrights and Trade Marks*

Patents.—Letters patent are issued subject to the provisions of the Patent Act (RSC 1952, c. 203), effective since 1935. Applications for protection relating to patents should be addressed to the Commissioner of Patents, Ottawa.

* The material relating to patents and copyrights was revised by the Commissioner of Patents, and that relating to trade marks by the Registrar of Trade Marks, Department of the Secretary of State, Ottawa.

5.—Patents Applied for, Granted, etc., Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
Applications for patents..... No.	21,762	22,257	22,912	24,292	24,529
Patents granted..... "	15,513	16,261	18,293	22,021	22,014
Granted to Canadians..... "	1,787 ²	1,488 ²	1,515	1,903	2,036
Caveats granted..... "	245	242	296	291	281
Assignments..... "	19,124	19,744	20,208	22,015	22,587
Fees received, net..... \$	1,405,136	1,438,218	1,559,705	1,793,685	1,806,279

The number of Canadian patents granted increased fairly steadily each year from 4,522 at the beginning of the century to a peak of 22,014 in the year ended Mar. 31, 1961. Roughly, 68 p.c. of the patents granted resulted from inventions made by residents of the United States, 11 p.c. by residents of Britain and other Commonwealth countries and 6 p.c. by residents of Canada.

Printed copies of patents issued from Jan. 1, 1948 to date are available at a nominal fee. The Canadian *Patent Office Record* gives a brief digest of each patent.

Canadian and foreign patents may be consulted at the Patent Office Library. The Library has records of British patents and abridged specifications thereof from 1617 to date, and of United States patents from 1845 to date, as well as many patents, indexes, journals and reports from Australia, New Zealand, South Africa, India, Pakistan, France, Belgium, Austria, Norway, Mexico, Italy, Sweden, the Netherlands, Switzerland and Japan.

Copyrights, Industrial Designs and Timber Marks.—Registration of copyright is governed by the Copyright Act 1921 (RSC 1952, c. 55) in force since 1924. Applications for protection relating to copyrights should be addressed to the Commissioner of Patents, Ottawa.

The Act sets out the qualifications for a copyright and its duration: "Copyrights shall subsist in Canada . . . in every original literary, dramatic, musical and artistic work, if the author was, at the date of the making of the work, a British subject, a citizen or subject of a foreign country which has adhered to the Berne Convention and the additional Protocol . . . or resident within Her Majesty's Dominions. The term for which the copyright shall subsist shall, except as otherwise expressly provided by this Act, be the life of the author and a period of fifty years after his death."

Copyright protection is extended to records, perforated rolls, cinematographic films, and other contrivances by means of which a work may be mechanically performed. The intention of the Act is to enable Canadian authors to obtain full copyright protection in Canada, in all parts of the Commonwealth, in foreign countries of the Copyright Union and in the United States of America.

Protection of industrial designs and of timber marks is afforded under the Industrial Design and Union Label Act and the Timber Marking Act. Registers of such designs and marks are kept by the Copyright Branch of the Patent Office.

6. —Copyrights, Industrial Designs and Timber Marks Registered, Years Ended Mar. 31, 1957-61

Item		1957	1958	1959	1960	1961
Copyrights registered.....	No.	5,099	5,052	5,331	5,513	6,381
Industrial designs registered.....	"	601	665	684	790	795
Timber marks registered.....	"	9	3	7	—	—
Assignments registered.....	"	796	735	640	1,037	1,017
Fees received, net.....	\$	21,628	21,986	23,440	24,614	27,446

Trade Marks.—The Trade Marks Office, a Branch of the Department of the Secretary of State, administers the Trade Marks Act (SC 1952-53, c. 49) which covers all legislation concerning the registration and use of trade marks and supersedes from July 1, 1954, former legislation enacted under the Unfair Competition Act, the Union Label Act and the Shop Cards Registration Act. All correspondence relating to an application for registration of a trade mark should be addressed to the Registrar of Trade Marks, Ottawa.

Applications are advertised for opposition purposes in the *Trade Marks Journal*, a weekly publication that also gives particulars of every registration of a trade mark and every registration of a registered user. The required fee payable on application for registration of a trade mark is \$25, for advertisement of an application \$15 and for registration of a person as a registered user of a trade mark \$20.

7.—Trade Marks Registered, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
Trade marks registered..... No.	3,508	3,769	3,902	3,818	4,524
Trade mark registrations assigned..... "	1,858	3,078	2,642	2,541	3,115
Trade mark registrations renewed..... "	2,002	3,434	1,117	1,481	1,748
Certified copies prepared..... "	716	1,069	906	1,368	1,407
Fees received, net..... \$	260,305	273,558	268,437	302,164	305,036

Subsection 3.—Subventions and Bounties on Coal*

A major problem of the Canadian coal mining industry arises from the fact that its fields are situated far distant from the main consuming markets of the Provinces of Ontario and Quebec while these markets lie in close proximity to the bituminous and anthracite fields of the United States. Transportation subventions, which have been maintained in varying degree during the past 30 years, were designed to further the movement of Canadian coals by equalizing, as far as possible, their laid-down costs with the laid-down costs of imported coals in various market areas. This assistance is authorized from year to year by Parliamentary vote and payments are administered in accordance with regulations established by Orders in Council.

* Revised by the Administrative Officer, Dominion Coal Board, Ottawa.

8.—Expenditure for Coal Subventions, by Province, 1957-61

NOTE.—Tonnages and expenditures shown in a given year, being on a calendar-year basis, are not necessarily in direct relationship; certain of the amounts include adjustments on movements of previous years.

Province	1957	1958	1959	1960	1961
Nova Scotia..... ton	2,372,678	2,370,131	2,154,034	2,048,073	2,323,684
\$	7,087,994	8,352,014	11,822,776	12,950,733	14,208,207 ¹
New Brunswick..... ton	47,769	120,963	137,613	173,063	146,201
\$	82,770	193,996	253,557	324,922	227,129
Saskatchewan..... ton	320,500	297,892	111,006	79,377	104,807
\$	282,718	268,479	96,751	64,248	85,161
Alberta and eastern British Columbia..... ton	440,174	216,825	130,956	51,884	38,171
\$	1,401,767	666,452	401,820	151,685	96,680
British Columbia and Alberta export..... ton	40,560	21,533	192,857	633,913	719,840
\$	87,004	68,982	845,895	2,852,608	3,239,279
Totals..... ton	3,221,651	3,027,344	2,726,466	2,986,310	3,332,703
\$	8,942,253	9,549,923	13,420,799	16,344,196	17,854,456¹

¹ Includes \$500,000 paid by the Nova Scotia Government as its share of the joint cost of certain Nova Scotia subvention payments.

The Canadian Coal Equality Act (RSC 1952, c. 34), which implemented one of the recommendations of the Royal Commission on Maritime Claims (1926), was designed to assist the Canadian steel industry and only incidentally affects coal. It provides for the payment of 49.5 cents per ton on bituminous coal mined in Canada and converted into coke to be used in the Canadian manufacture of iron and steel. Bounties paid under this authority for the years 1957-61 were as follows:—

<i>Item</i>		<i>1957</i>	<i>1958</i>	<i>1959</i>	<i>1960</i>	<i>1961</i>
Quantity.....	ton	765,352	557,445	604,234	693,581	457,950
Amount.....	\$	378,849	275,935	299,096	343,323	226,685

PART III.—BANKRUPTCIES AND COMMERCIAL FAILURES

The two Sections of this Part, although closely related as far as subject matter is concerned, cover different aspects of the field of bankruptcies and commercial failures; thus the statistics presented in each Section are not comparable with those given in the other Section.

Section 1 is limited to the supervision, by the Superintendent of Bankruptcy, of the administration of bankrupt estates under the Bankruptcy Act (including the Farmers' Creditors Arrangement Act). This Section, however, gives definite information on the amounts realized from the assets as established by debtors and indicates that values actually paid to creditors are invariably very much lower than such estimates alone would imply. It can therefore be assumed that this applies in even greater degree to the more extended fields covered in Section 2.

Section 2 is limited to bankruptcies and insolvencies made under federal legislation (the Bankruptcy Act and the Winding-Up Act) but does not include failures, sales or seizures carried out apart from such federal legislation. The Dominion Bureau of Statistics coverage was revised from January 1955 to include business failures only (see p. 920). The figures of assets and liabilities are estimates made by the debtor and, because they are not made uniformly, should be accepted with reservations.

Section 1.—Administration of Bankrupt Estates*

Federal insolvency legislation now comprises the Bankruptcy Act 1949 (RSC 1952, c. 14), the Farmers' Creditors Arrangement Act 1943 (RSC 1952, c. 111), the Companies' Creditors Arrangement Act and to some extent the Winding-Up Act. The two Arrangement Acts are designed to avert failure and the statistics in this Section and in Section 2 therefore do not include proposals or arrangements under these Acts. When such proposals or arrangements are rejected by the creditors or fail in their purpose, the proceedings may then come under the Bankruptcy Act, the bankruptcy provisions of the Farmers' Creditors Arrangement Act or, in certain circumstances, the Winding-Up Act. There are no provisions in the Companies' Creditors Arrangement Act for the liquidation or winding-up of insolvent companies.

* Prepared by the Superintendent of Bankruptcy, Ottawa. Early bankruptcy and insolvency legislation is reviewed in the 1952-53 Year Book, pp. 914-915.

1.—Assets, Liabilities, Assets Realized and Cost of Administration under the Bankruptcy Act, by Province, 1960

Province	BANKRUPTCIES UNDER GENERAL PROVISIONS OF THE ACT ¹					
	Estates Closed	Assets as Estimated by Debtors	Liabilities as Estimated by Debtors	Total Realization	Cost of Administration	Paid to Creditors
	No.	\$	\$	\$	\$	\$
Newfoundland.....	7	416,644	711,037	153,530	49,665	108,865
Prince Edward Island.....	6	81,580	162,363	32,646	4,306	28,340
Nova Scotia.....	10	327,688	729,477	80,367	24,468	55,899
New Brunswick.....	18	109,598	304,441	21,950	10,645	11,305
Quebec.....	1,943	16,593,386	38,424,159	4,668,202	1,815,052	2,853,150
Ontario.....	659	8,432,624	21,284,872	2,285,980	770,743	1,515,237
Manitoba.....	30	1,251,500	1,427,346	190,746	48,605	142,141
Saskatchewan.....	23	184,440	491,485	33,132	14,649	18,483
Alberta.....	70	867,101	1,906,000	302,332	79,586	222,746
British Columbia.....	60	1,801,604	2,559,111	618,348	143,657	474,691
Totals.....	2,826	30,066,165	66,000,291	8,392,233	2,961,376	5,430,857
PROPOSALS UNDER SECTION 27(1) (a) OF THE ACT						
	Proposals Completed	Unsecured Liabilities as Estimated by Debtors		Paid to Unsecured Creditors		
	No.	\$		\$		
Newfoundland.....	...	...		...
Prince Edward Island.....	...	...		...
Nova Scotia.....	1	71,472		14,148		
New Brunswick.....	...	...		...
Quebec.....	67	1,892,734		631,536		
Ontario.....	33	2,840,393		852,342		
Manitoba.....	1	162,530		63,869		
Saskatchewan.....	2	25,858		8,327		
Alberta.....	...	...		...
British Columbia.....	7	1,838,433		638,217		
Totals.....	111	6,831,420		2,208,439²		

¹ Includes summary administration provisions of the Bankruptcy Act.

² In addition to the amount paid to creditors by the trustee, secured creditors realized direct from their security approximately \$17,572,240.

Section 2.—Returns under the Bankruptcy and Winding-Up Acts as compiled by the Dominion Bureau of Statistics

The statistics concerning bankruptcies and insolvencies published by the Dominion Bureau of Statistics cover only the failures coming under federal legislation, i.e., the Bankruptcy Act and the Winding-Up Act. Certain documents relating to estates administered under these Acts have been forwarded, since July 1920, to the Dominion Statistician for statistical analysis. The Bankruptcy Act of 1949 altered the administration of bankruptcies by providing for proposals from insolvent persons. Since July 1950, agreements made under this method have not been included with the statistics of bankruptcy, so that subsequent figures are not strictly comparable with those for previous years. Table 2 shows the number of proposals in order to give a general impression of the trend.

A major revision made in the compilation and presentation of commercial failures statistics by the Dominion Bureau of Statistics extends back to January 1955. The revised series covers business failures only, excluding failures of individuals such as wage-earners, salesmen and executive personnel formerly included. In Tables 2, 3 and 4 figures for the year 1955 are given on both the old and new bases, so as to show the extent to which the series was altered by the revision.

2.—Bankruptcies and Insolvencies under Federal Legislation, by Province, 1951-60

NOTE.—Figures from 1923 are given in the corresponding table of previous Year Books beginning with the 1941 edition.

Year	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	44	1,022	227	15	13	14	64	1,399
1952.....	40	1,167	220	13	8	13	48	1,509
1953.....	30	1,221	255	27	19	33	72	1,657
1954.....	45	1,645	414	27	30	44	73	2,278
1955.....	37	1,789	436	27	39	44	76	2,448
1955 ¹	36	1,180	406	27	37	42	67	1,795
1956.....	37	1,265	507	23	34	41	60	1,967
1957.....	54	1,359	630	26	32	55	57	2,213
1958.....	36	1,376	545	28	18	51	71	2,125
1959.....	36	1,366	653	26	20	47	76	2,229
1960.....	48	1,638	914	34	28	46	120	2,828
Proposals—								
1951.....	4	160	8	—	—	—	4	176
1952.....	1	172	15	—	—	—	3	191
1953.....	—	153	9	2	—	1	1	171
1954.....	1	416	29	4	1	1	4	456
1955.....	7	466	36	2	1	1	5	518
1956.....	9	738	49	2	—	—	14	812
1957.....	4	479	38	1	1	1	10	534
1958.....	5	395	44	1	1	1	11	458
1959.....	3	419	63	2	1	3	12	503
1960.....	9	480	96	3	—	2	11	601

¹ New series not strictly comparable with previous figures; see text on p. 920.

3.—Bankruptcies and Insolvencies under Federal Legislation, by Branch of Business, 1951-60

NOTE.—Figures from 1924 are given in the corresponding table of previous Year Books beginning with the 1942 edition.

Year	Agriculture, Forestry, Fishing, Trapping and Mining	Manu- fac- turing	Con- struc- tion	Transportation, Communications and Storage	Trade	Finance and Public Utilities	Service	Not Classified	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1951.....	36	269	126	42	570	27	255	74	1,399
1952.....	51	305	114	45	569	32	279	114	1,509
1953.....	53	359	124	52	650	30	286	103	1,657
1954.....	80	416	135	67	973	41	408	158	2,278
1955.....	68	305	287	116	882	44	454	292	2,448
1955 ¹	66	290	309	68	772	14	250	26	1,795
1956.....	58	342	375	83	782	28	246	53	1,967
1957.....	80	366	372	109	928	40	244	74	2,213
1958.....	67	356	367	105	882	42	295	11	2,125
1959.....	81	374	449	76	906	36	307	—	2,229
1960.....	100	323	619	129	1,229	65	363	—	2,828

¹ New series not strictly comparable with previous figures; see text on p. 920.

4.—Estimated Liabilities of Bankruptcies and Insolvencies, 1951-60

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1951.....	947	15,958	5,919	729	2,359	25,912
1952.....	831	20,249	6,653	621	1,304	29,658
1953.....	1,692	18,022	8,270	2,841	1,993	32,818
1954.....	1,029	30,825	15,036	4,075	1,577	53,142
1955.....	1,855	33,927	16,324	4,196	2,837	59,138
1955 ¹	2,248	28,746	16,299	3,939	2,548	53,776
1956.....	2,049	32,704	21,842	5,223	2,437	64,254
1957.....	2,508	37,266	31,349	5,683	3,056	79,863
1958.....	4,493	40,250	17,884	4,672	5,479	72,778
1959.....	2,302	50,034	34,156	3,866	5,429	95,786
1960.....	3,568	61,851	91,090	7,732	10,307	174,548

¹ New series not strictly comparable with previous figures; see text on p. 920.

5.—Bankruptcies and Insolvencies by Industries and Economic Areas 1960, with Totals and Liabilities for 1959 and 1960

Industry	1960					Totals		Total Liabilities	
	Atlantic Prov- inces	Quebec	Ontario	Prairie Prov- inces	British Colum- bia	1960	1959	1960	1959
	No.	No.	No.	No.	No.			\$'000	\$'000
Agriculture, Forestry, Fishing, Trapping and Mining.....	2	49	36	8	5	100	81	48,151	2,956
Manufacturing.....	3	188	104	14	14	323	374	22,918	23,136
Foods and beverages.....	—	20	11	3	3	37	27	2,441	750
Textiles.....	—	2	4	—	—	6	5	280	532
Clothing.....	—	33	8	1	—	42	54	1,928	3,461
Wood products.....	—	47	22	3	6	78	59	5,317	2,365
Paper products and printing in- dustries.....	1	19	10	2	1	33	28	1,535	2,419
Iron and steel, transportation equipment, electrical apparat- us and non-ferrous metals.....	2	31	33	4	3	73	169	8,299	12,341
Chemical products.....	—	3	4	—	—	7	3	206	143
Other industries.....	—	33	12	1	1	47	29	2,912	1,125
Construction.....	8	325	231	23	32	619	449	36,265	21,868
General contractors.....	4	128	120	12	15	279	177	19,663	11,272
Special trade contractors.....	4	197	111	11	17	340	272	16,602	10,596
Transportation, Communica- tions and Storage.....	—	75	34	8	12	129	76	4,322	1,388
Trade.....	30	713	394	46	46	1,229	906	45,471	32,172
Food.....	8	132	35	4	2	181	186	4,267	4,967
General merchandise.....	2	34	13	3	3	55	29	1,823	827
Automotive products.....	8	169	94	20	8	299	85	9,145	7,959
Clothing and shoes.....	5	104	54	6	3	172	145	4,093	3,303
Hardware and building materials	4	60	59	6	10	139	88	8,387	3,827
Furniture, appliances and radios.	1	79	59	4	6	149	111	9,371	5,714
Drugs.....	—	6	4	—	1	11	10	235	393
Other.....	2	129	76	3	13	223	252	8,150	5,182
Finance and Public Utilities....	2	36	19	2	6	65	36	7,523	5,426
Service.....	3	252	96	7	5	363	307	9,598	8,840
Community.....	—	19	8	—	1	28	19	937	330
Recreational.....	—	10	6	—	—	16	13	1,143	852
Business.....	—	30	16	1	1	48	25	1,978	2,593
Personal.....	3	177	55	5	2	242	240	5,288	5,065
Other.....	—	16	11	1	1	29	—	552	—
Totals.....	48	2,638	914	108	120	2,828	2,229	174,548	95,786

PART IV.—PRICES*

Section 1.—Index Numbers of Wholesale Prices

The term "wholesale prices" refers in this Section to transactions that occur below the retail level. It has more of a connotation of bulk purchase and sale than of any homogeneous level of distribution.

Wholesale price indexes and individual price series have numerous uses. One of the most important is in escalator contracts which contain a price adjustment clause. Other major uses include: studies of replacement and construction costs in investment projects; analysis of price movements of both individual items and commodity groups in relation to purchases and sales; industrial planning and market analysis; valuation for tax purposes and inventory analysis; and studies in changes of physical volume. They are also used by business firms abroad in connection with sales and purchases in Canada.

General Wholesale Index.—The General Wholesale Index includes prices mainly of manufacturers but also included are those of wholesalers proper, assemblers of primary products, agents and operators of other types of commercial enterprises who trade in commodities of a type, or in quantities characteristic of primary marketing functions. In the General Wholesale Index, prices are grouped according to a commodity classification scheme based on chief component material similarities. In addition, indexes classified according to degree of manufacture are available. In Table 1, the General Wholesale Index is presented for the period 1952-61. Also presented are price indexes for three major price groups of commodities within the General Wholesale Index—raw and partly manufactured, fully and chiefly manufactured, and non-farm products.

General wholesale price indexes have been calculated by most countries for many years but the question "What does a general wholesale price index measure?" cannot be given a precise answer. A retail price index can be identified with consumer expenditure, but a general wholesale index covers a much wider range; yet it is not a measure of the purchasing power of money since it does not include prices of land, labour, securities or services, except in so far as prices of these things enter into commodity prices. As a conventional summary figure, its use has tended toward a reference level against which to observe the behaviour of particular price groups such as farm products, raw materials, and building materials, for which separate price indexes have been constructed. These more specific indexes and the General Wholesale Index are published regularly in the DBS monthly publication *Prices and Price Indexes* (Catalogue No. 62-002), which also contains current series on retail and security prices. Vol. 23 of that publication is a historical summary reaching back to the year 1867 for some series.

Recently, the DBS introduced a new system of wholesale price indexes called *Industry Selling Price Indexes 1956=100*, referring exclusively to manufacturing industries. The foremost objective of this system is to provide measurements of price movements that occur in industries as defined under the Standard Industrial Classification. Thus, they are co-ordinated with the many other statistical series organized according to this classification. In addition, the system includes series for the most important products of the industries concerned. There are approximately 100 industry and 175 commodity indexes published. Consequently, the indexes are too numerous to re-publish here, but interested readers may consult DBS Reference Paper No. 62-515 which contains tables, explanatory text, charts and weights relating to these indexes. Current Industry Selling Price Indexes are published monthly in *Prices and Price Indexes* (Catalogue No. 62-002).

The General Wholesale Index rose 1 p.c. from 230.9 in 1960 to 233.3 in 1961. Thus, there was a return to the gradual annual increase which stalled between 1959 and 1960 when the index remained virtually unchanged.

* Prepared in the Prices Division, Dominion Bureau of Statistics.

The raw and partly manufactured goods index increased 1.4 p.c. from 209.6 to 212.6 and thus exceeded the increase of 0.9 p.c. shown by the fully and chiefly manufactured goods index. The non-farm products group, which contains more commodities common to the latter than to the former, also increased 0.9 p.c. from 237.0 to 239.1 from 1960 to 1961.

1.—Annual Index Numbers of Wholesale Price Groups 1952-61, and Monthly Indexes 1960 to Mid-1962

NOTE.—Canadian farm products indexes subsequent to July 1960 are subject to revision; other indexes are final to the end of 1961.

(1935-39=100)

Year and Month	General Wholesale Index	Raw and Partly Manufactured Goods	Fully and Chiefly Manufactured Goods	Industrial Materials	Canadian Farm Products ¹		
					Field	Animal	Total
1952.....	226.0	218.7	230.7	252.6	223.0	277.5	250.2
1953.....	220.7	207.0	228.8	232.3	179.4	263.8	221.6
1954.....	217.0	204.8	224.2	223.7	170.9	256.2	213.6
1955.....	218.9	209.7	224.5	236.0	180.1	245.1	212.6
1956.....	225.6	215.8	231.5	248.2	181.6	246.9	214.2
1957.....	227.4	209.4	237.9	240.3	169.2	258.0	213.6
1958.....	227.8	209.3	238.3	229.8	171.4	274.5	222.9
1959.....	230.6	210.9	241.6	240.2	176.1	271.6	223.9
1960.....	230.9	209.6	242.2	240.4	189.1	264.1	226.6
1961.....	233.3	212.6	244.5	243.2	179.6	270.0	224.8
1960							
January.....	230.7	209.0	242.4	243.2	184.9	257.7	221.3
February.....	230.2	208.6	241.4	241.8	185.2	252.0	218.6
March.....	229.8	208.1	241.2	240.4	188.2	252.2	220.2
April.....	231.5	211.0	242.4	241.7	193.7	256.2	224.9
May.....	231.6	211.0	242.5	245.2	195.4	257.8	226.6
June.....	232.4	213.1	242.8	242.2	198.4	265.0	231.7
July.....	232.4	212.6	243.0	240.5	186.7	270.1	228.4
August.....	230.5	209.3	241.8	240.8	186.7	271.7	229.2
September.....	230.5	209.0	242.1	241.0	186.5	273.6	230.1
October.....	230.6	208.8	242.2	238.5	187.7	267.8	227.8
November.....	229.9	207.4	242.1	236.0	187.5	269.7	228.6
December.....	230.4	207.5	242.7	235.2	188.4	275.0	231.7
1961							
January.....	231.7	208.8	244.0	235.4	180.3	277.1	233.2
February.....	232.1	208.8	244.5	238.1	180.0	276.3	232.7
March.....	231.3	207.8	243.8	240.2	188.2	268.6	228.4
April.....	230.9	207.2	243.6	241.7	188.5	261.7	225.1
May.....	231.2	208.4	243.4	244.0	187.3	264.4	225.8
June.....	231.4	209.3	243.2	239.7	192.5	267.7	228.6
July.....	234.5	215.7	244.7	247.7	191.3	265.3	228.3
August.....	234.5	215.5	244.7	247.1	168.5	265.4	216.9
September.....	235.3	216.9	245.2	247.8	165.7	272.3	219.0
October.....	235.3	217.1	245.3	246.6	165.3	275.3	220.3
November.....	235.3	217.2	245.2	244.6	164.2	275.0	219.6
December.....	236.5	219.2	246.0	245.7	165.8	274.2	220.0
1962^a							
January.....	237.0	219.3	246.6	245.2	166.7	271.0	218.9
February.....	237.2	220.2	246.2	246.2	167.5	270.8	219.2
March.....	237.1	219.6	246.4	247.1	167.1	267.5	217.3
April.....	237.4	220.3	246.9	247.6	166.4	272.0	219.2
May.....	239.1	224.3	247.5	251.8	168.9	276.7	222.8
June.....	240.3	225.3	248.7	251.3	172.0	285.7	228.8

¹ Wheat prices used in this index are Canadian Wheat Board buying prices for Nos. 1, 2 and 3 Manitoba Northern at Fort William-Port Arthur. The initial payment is first used and the index revised as further payments are announced. Between August 1945 and July 1950 the price included for No. 1 Manitoba Northern was \$1.83 per bushel. For subsequent crop years the price was as follows: 1950-51, \$1.85; 1951-52, \$1.83; 1952-53, \$1.82; 1953-54, \$1.50; 1954-55, \$1.65; 1955-56, \$1.61; 1956-57, \$1.58; 1957-58, \$1.61; 1958-59, \$1.59; 1959-60, \$1.58; and 1960-61, \$1.791. For the crop year 1961-62 the initial payment of \$1.40 for No. 1 Manitoba Northern was increased to \$1.50 as of Mar. 1, 1962. Western oats and barley were brought under control of the Canadian Wheat Board on Aug. 1, 1949. Since then prices for the Canadian farm products index have been initial payments to farmers, with participation payments included whenever announced.

Index Numbers of Building Materials Prices.—Price movements of materials entering into building construction are currently measured by two special-purpose series: price index numbers of residential building materials and price index numbers of non-residential building materials, for which the base years are 1935-39 and 1949, respectively. Details of weighting and construction and historical series may be found in the special bulletins prepared at the time the indexes were first published.* More recently the composite indexes have been calculated on an annual basis back to 1913; current indexes are published monthly in *DBS Bulletin Prices and Price Indexes* (Catalogue No. 62-002).

The indexes of prices of building materials fluctuated in a narrow range over the year 1961 to close at slightly lower levels. The residential building materials price index (1935-39=100) at 292.4 in December 1961 was down from 293.8 a year earlier. The non-residential building materials price index (1949=100) in the same period moved down from 132.3 to 131.2.

* *Price Index Numbers of Residential Building Materials, 1926-48* (Catalogue No. 62-505) and *Price Index Numbers of Non-residential Building Materials, 1935-52* (Catalogue No. 62-506). Revised item list and weighting for the electrical component of the residential building materials index, effective July 1960, is available on request.

2.—Annual Price Index Numbers of Residential Building Materials 1952-61, and Monthly Indexes 1960 to Mid-1962

(1935-39=100)

Year and Month	Composite Index (1949=100) ¹	Composite Index	Principal Components								
			Cement, Sand and Gravel	Brick, Tile and Stone	Lumber and its Products	Lath, Plaster and Insulation	Roofing Material	Paint and Glass	Plumbing and Heating Equipment	Electrical Equipment and Fixtures	Other Materials
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	...	...	7.6	5.0	42.6	11.3	2.9	3.2	18.6	3.8	5.0
1952.....	124.9	284.8	149.5	195.3	415.7	128.5	217.7	194.9	215.6	212.0	226.3
1953.....	123.9	282.6	151.8	205.8	410.6	128.5	218.6	203.8	209.0	211.4	229.5
1954.....	121.7	277.5	151.3	207.4	400.5	128.8	233.4	208.9	202.8	207.7	226.6
1955.....	124.3	283.4	149.4	206.5	409.4	125.3	244.5	219.7	207.2	229.2	230.3
1956.....	128.5	292.9	149.7	218.8	420.2	130.8	259.6	226.9	217.9	243.7	243.7
1957.....	128.5	292.8	153.6	223.8	415.2	136.9	253.3	225.4	227.6	209.2	253.8
1958.....	128.4	292.8	156.8	224.6	409.8	139.8	235.4	226.6	229.8	186.9	254.0
1959.....	127.3	290.2	153.8	227.8	421.1	140.9	239.3	229.3	231.6	201.6	256.9
1960.....	130.0	296.3	154.6	229.3	415.9	142.4	214.5	230.5	235.2	198.2	262.3
1961.....	129.2	294.5	154.6	229.3	415.9	142.4	214.5	230.5	235.2	198.2	262.3
1961.....	128.3	292.5	153.0	218.9	412.3	144.8	204.0	235.6	236.1	194.2	261.8
1960											
January.....	129.6	295.5	154.7	228.3	419.3	139.8	213.8	230.0	234.5	199.7	261.8
February.....	129.6	295.4	151.7	228.3	418.7	140.2	217.6	230.0	234.5	199.5	261.8
March.....	129.6	295.6	151.7	229.7	419.0	140.2	217.6	230.0	234.5	199.5	261.8
April.....	129.8	295.9	151.7	229.7	419.9	140.2	214.4	230.0	234.5	199.8	261.8
May.....	129.6	295.4	154.1	229.7	418.7	140.2	208.5	230.0	236.0	198.4	261.8
June.....	129.6	295.4	154.1	229.7	417.7	143.5	212.3	230.0	235.6	198.8	262.3
July.....	129.5	295.2	155.0	229.7	417.3	143.5	212.3	230.0	235.6	195.9	262.3
August.....	128.7	293.5	155.0	229.7	413.6	142.7	212.3	230.0	235.6	197.3	262.3
September.....	128.6	293.2	155.0	229.7	412.6	142.7	212.3	230.0	235.5	198.0	262.6
October.....	128.1	292.1	154.3	229.0	409.9	143.1	217.3	230.0	235.5	197.7	262.8
November.....	128.5	292.9	154.3	229.0	410.6	145.8	219.5	230.0	235.5	197.7	263.1
December.....	128.9	293.8	154.3	229.0	413.0	145.6	215.6	235.6	235.5	195.7	263.1

For footnote, see end of table, p. 926.

2.—Annual Price Index Numbers of Residential Building Materials 1952-61, and Monthly Indexes 1960 to Mid-1962—concluded

Year and Month	Com- posite Index (1949= 100) ¹	Com- posite Index	Principal Components								
			Cement, Sand and Gravel	Brick, Tile and Stone	Lumber and its Products	Lath, Plaster and Insu- lation	Roof- ing Mate- rial	Paint and Glass	Plumb- ing and Heat- ing Equip- ment	Elec- trical Equip- ment and Fix- tures	Other Mate- rials
1961											
January.....	128.3	292.6	156.6	229.0	411.0	142.3	216.5	235.6	234.9	194.7	261.9
February.....	128.2	292.3	155.0	230.2	410.4	142.3	215.2	235.6	235.8	193.4	261.9
March.....	128.9	293.9	155.0	230.2	414.4	142.3	213.3	235.6	235.8	192.0	261.9
April.....	128.6	293.3	153.2	230.2	413.1	142.3	212.5	235.6	236.2	191.8	261.9
May.....	128.2	292.3	153.2	213.4	412.8	142.9	202.6	235.6	236.2	192.7	261.9
June.....	128.5	293.0	153.2	213.4	414.3	144.9	202.6	235.6	236.2	193.7	261.9
July.....	128.5	292.9	153.2	213.4	414.0	144.9	201.2	235.6	236.2	195.2	261.9
August.....	128.0	291.9	151.9	213.4	411.9	144.9	201.2	235.6	236.2	195.4	261.9
September.....	127.9	291.5	150.7	213.4	411.0	147.8	193.9	235.6	236.2	195.4	261.5
October.....	127.7	291.2	150.7	213.4	410.2	147.8	193.9	235.6	236.2	195.0	261.5
November.....	128.2	292.3	151.8	213.4	412.4	147.8	193.9	235.6	236.5	195.5	261.5
December.....	128.2	292.4	151.8	213.4	412.6	147.8	193.9	235.6	236.5	195.2	261.5
1962 ^a											
January.....	128.7	293.5	152.9	218.6	415.1	147.7	189.2	235.6	236.5	195.3	258.6
February.....	128.4	292.8	152.9	218.6	415.6	148.4	189.2	235.6	231.3	194.9	258.6
March.....	128.9	293.9	152.9	216.4	418.0	149.2	192.4	235.6	231.4	195.0	258.9
April.....	129.1	294.3	152.9	216.4	418.1	149.1	200.5	235.6	231.4	197.3	258.9
May.....	129.7	295.8	153.1	216.4	421.1	149.1	206.9	235.6	231.4	197.1	258.9
June.....	130.1	296.6	153.1	216.4	422.8	148.3	213.3	235.6	231.4	199.4	258.9

¹ Arithmetically converted to base 1949=100 for comparability with price indexes of non-residential building materials shown in Table 3.

3.—Annual Price Index Numbers of Non-residential Building Materials 1952-61, and Monthly Indexes 1960 to Mid-1962

(1949=100)

Year	Composite Index	Principal Components						
		Steel and Metal Work	Plumbing, Heating and Other Equipment	Electrical Equipment and Fixtures	Aggregate, Cement and Concrete Mix	Lumber and Lumber Products	Blocks, Brick and Stone	Tile
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	...	20.1	21.4	11.5	11.1	10.5	9.1	3.8
1952.....	123.2	131.3	121.3	121.7	117.4	127.9	119.7	115.5
1953.....	124.4	134.7	119.2	119.6	120.2	127.8	125.9	117.1
1954.....	121.8	128.2	115.2	117.6	120.9	124.5	127.0	120.6
1955.....	123.4	129.9	118.0	121.3	120.3	127.6	127.0	120.3
1956.....	128.0	139.0	123.4	128.6	117.0	131.5	130.3	120.8
1957.....	130.0	147.7	124.1	118.4	119.4	128.7	134.0	118.5
1958.....	129.8	150.9	123.8	118.0	119.6	126.8	135.7	118.2
1959.....	131.7	152.6	126.0	119.2	118.6	131.3	137.4	118.3
1960.....	132.3	152.9	126.7	119.5	119.8	129.0	139.1	121.0
1961.....	131.1	153.2	126.3	113.8	119.8	127.6	133.0	123.9

3. Annual Price Index Numbers of Non-residential Building Materials 1952-61, and Monthly Indexes 1960 to Mid-1962—concluded

Year and Month	Composite Index	Principal Components						
		Steel and Metal Work	Plumbing, Heating and Other Equipment	Electrical Equipment and Fixtures	Aggregate, Cement and Concrete Mix	Lumber and Lumber Products	Blocks, Brick and Stone	Tile
1960								
January.....	132.0	152.9	126.5	117.6	121.7	130.8	138.5	118.6
February.....	132.1	153.0	126.7	118.0	121.7	130.6	138.5	118.2
March.....	132.2	153.0	126.7	117.7	121.7	130.4	139.7	118.2
April.....	132.5	152.9	126.9	122.7	119.4	130.5	139.5	118.2
May.....	132.4	152.9	127.0	122.1	117.2	129.4	139.5	122.1
June.....	132.6	152.9	127.0	122.1	117.3	129.1	139.5	122.1
July.....	132.8	152.9	127.0	122.1	118.8	129.1	139.3	122.3
August.....	132.7	152.9	126.9	122.1	118.8	128.3	139.3	122.3
September.....	132.3	152.8	126.6	120.3	118.8	127.4	139.3	122.3
October.....	132.3	152.8	126.4	119.7	118.6	127.1	138.6	122.1
November.....	132.0	152.8	126.4	114.7	120.3	127.1	138.6	122.1
December.....	132.3	153.1	126.4	114.6	122.9	127.9	138.6	123.2
1961								
January.....	132.0	153.1	125.7	114.6	122.9	127.6	138.7	123.7
February.....	131.7	153.2	125.9	114.1	122.5	126.9	136.7	123.0
March.....	131.7	153.2	125.8	114.1	122.5	127.2	137.0	123.0
April.....	131.4	153.2	126.0	113.1	120.0	128.0	136.8	122.8
May.....	130.5	153.2	126.6	112.7	118.3	128.3	130.5	122.8
June.....	130.7	153.3	126.7	113.1	118.3	128.3	130.4	124.4
July.....	130.9	153.3	126.7	114.3	118.3	128.1	130.4	124.4
August.....	130.9	153.3	126.7	114.4	118.3	127.6	130.5	124.7
September.....	130.7	153.3	126.3	114.4	118.0	127.4	131.1	124.5
October.....	130.6	153.3	126.5	114.1	117.4	127.0	131.1	124.5
November.....	130.6	153.3	126.6	112.3	119.3	127.2	131.3	124.6
December.....	131.2	153.3	126.6	114.3	121.6	127.7	131.3	124.6
1962 ^p								
January.....	131.5	153.3	126.9	114.6	124.0	128.5	131.5	124.7
February.....	131.5	153.3	127.1	114.2	124.0	129.0	130.9	124.7
March.....	131.6	153.3	127.1	114.2	124.0	130.2	130.9	124.6
April.....	131.6	153.3	127.1	113.4	121.6	130.6	130.9	124.8
May.....	131.6	153.3	127.1	114.0	120.1	131.0	130.9	124.9
June.....	131.6	153.3	127.4	113.2	120.2	131.7	130.9	124.8

World Wholesale Price Indexes.—Price changes within different countries have varied widely during the years. Comparisons of Canadian wholesale price indexes with those of other countries are given in Table 4.

4.—Index Numbers of Wholesale Prices in Canada and Other Countries, 1958-60

(BASE: 1953=100. SOURCE: *United Nations Monthly Bulletin of Statistics*, November 1958, 1959 and 1960.)

Country	1958	1959	1960	Country	1958	1959	1960
Belgium.....	102	101	102	India.....	107	111	118
Brazil.....	222	305	399	Iran.....	119	123	..
Britain.....	101	102	102	Israel.....	153	153	151
Canada.....	103	104	104	Korea, South.....	143	147	163
Chile.....	811	1,053	1,109	Netherlands.....	105	106	103
Denmark.....	105	105	105	New Zealand.....	108	110	110
Dominican Republic.....	103	97	100	Norway.....	111	111	112
Egypt.....	118	..	..	Sweden.....	107	108	111
France.....	121	126	130	Switzerland.....	102	100	101
Germany (Western).....	106	105	107	Turkey.....	189	227	239
Greece.....	129	130	132	United States.....	108	108	109

Section 2.—Consumer Price Index

The purpose of the Consumer Price Index is to measure the movement from month to month in retail prices of goods and services bought by a representative cross-section of the Canadian urban population. For a particular article or service, a price index number is simply the price of the article in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the Consumer Price Index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods each month as a percentage of their prices in the base period 1949.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all or composite index. The weights reflect the relative importance of items in expenditures of middle size urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket. The basket and weights now used in the index are based on expenditures in 1957 of families of two to six persons, with annual incomes of \$2,500 to \$7,000, living in cities of 30,000 population or over.

A comprehensive description of the index is contained in the publication *The Consumer Price Index (1949=100)—Revision Based on 1957 Expenditures* (Catalogue No. 62-518).

Movements in the Consumer Price Index Since 1949.—During the 15 years of almost continuous economic growth following the end of the Second World War there have been several distinct periods of retail price behaviour, the latest of which was in evidence throughout 1959, 1960 and 1961. The gradual relaxation of price controls in 1946 combined with consumer demands far in excess of supply brought on a period of rapidly advancing prices, so that between 1946 and 1948 the consumer price index advanced more than 25 p.c. A significant exception to these general price increases was the behaviour of rents which, continuing under some degree of control, increased only 7 p.c. in the same period. Toward the end of 1948, production appeared to be matching consumer demands and, during the slight recession of 1949, consumer prices levelled off. Between the latter months of 1948 and May 1950, retail prices increased only slightly more than 1 p.c. However, with the outbreak of war in Korea in June 1950 came a resurgence of pressure on prices and in the course of the next 18 months further major upward movements took place. The consumer price index rose from 102.7 in July 1950 to 118.1 by December 1951, an increase of 15 p.c. Food advanced sharply from 102.6 to 122.5 or by 20 p.c. The housing component, comprised of shelter and household operation groups, rose from 104.3 to 117.2. The shelter index, based on both home ownership and rents—the latter freed from most of the wartime controls—moved from 107.4 to 118.2, or by about 10 p.c. Household operation, covering such items as furniture, appliances and fuel, rose about the same degree, from 101.6 to 116.4. Clothing experienced a more substantial rise of 16 p.c. from 99.1 to 115.2. The wide variety of goods and services covered in the other groups followed a somewhat similar pattern.

The peak in consumer price levels was reached in January 1952 when the index stood at 118.2, dropping off gradually in the first half of 1952 to reach 115.9 in May, mainly as a

result of a drop of about 5 p.c. in the food index. From this point a plateau in retail prices was established which lasted for four years. Over this period, the consumer price index displayed noteworthy stability, ranging narrowly from a low of 114.4 to a high of 116.9. Although the general level of prices remained almost unchanged during this lengthy period, significant variations were taking place around a stable average. Food recorded mostly seasonal movements during 1953, 1954, 1955 and the first half of 1956. Non-food commodities experienced a decline of about 3 p.c. in a steady, gradually downward movement, much of it accounted for by appliances which moved down 17 p.c. On the other hand, rents advanced steadily to stand 13 p.c. higher in May 1956 than in May 1952. The entire group of service items also experienced continuous increases throughout this period.

From May 1956 a distinct change occurred in price patterns. A trend toward higher prices continued through the remainder of 1956 and the first ten months of 1957 and the total index moved up steadily from 116.6 to a new postwar peak of 123.4 in October 1957. Food, which was the component responsible for most of the upward movement at the total index level, rose from 109.3 in May 1956 to 121.9 by September 1957. Housing continued to advance steadily, although at a slightly moderating rate, as did other groups, particularly the service elements. In contrast, clothing prices remained practically unchanged and household operation, continuing to reflect the easy price situation of major household appliances, rose only 2.8 p.c.

The most recent period of upward movement in the consumer price index, which began in mid-1956 and continued throughout 1957, persisted in 1953 but with some evidence of moderating. Over the latter year, consumer prices averaged 2.6 p.c. above 1957, while 1957 prices were 3.2 p.c. above 1956. In the fourth quarter of 1958 consumer prices averaged 2.4 p.c. higher than in the same period a year earlier, while in the fourth quarter of 1957 prices were 2.6 p.c. above the fourth quarter of 1956.

During 1959, the upward movement in the consumer price index was far less marked than in the preceding years. For the year as a whole, the average level of consumer prices increased by 1.1 p.c. as compared with increases of 2.6 p.c. and 3.2 p.c. in 1958 and 1957, respectively. As in the case of the total index, all major groups, with the exception of the food component, averaged slightly higher in 1959 than in 1958. The increases, however, were mostly smaller than in the previous years. The largest increase in 1959, as in earlier years, occurred in the groups other than food, housing and clothing, particularly health and personal care and recreation and reading. Clothing prices were fractionally higher while the housing index increased almost 2 p.c. The most significant change in the pattern of price movement occurred in food prices which were fractionally lower on average in 1959. This was in marked contrast to increases of 3.0 p.c. in 1958 and 4.6 p.c. in 1957. From 1953 to 1956, the downward movement in food prices had offset increases in other components and provided stability in the total index, a condition that reappeared in 1959.

During 1960, consumer prices continued to reflect the relative stability of the previous year with an over-all price rise of 1.2 p.c. compared with an increase of 1.1 p.c. in 1959 over the year 1958. Changes in six of the seven component groups were quite similar; each of the six was at a higher level compared with 1959 with the increases ranging from 0.9 p.c. for food to 1.8 p.c. for recreation and reading. The health and personal care component, which in the past has risen faster than any of the other components, again experienced the largest gain in 1960, rising 2.9 p.c. above the 1959 level.

In 1961, the index ranged narrowly from a low of 128.9 in February to a high of 129.7 in November. Two factors in price movement during the year were (1) the introduction of

the 3-p.c. sales tax in Ontario in September, which was taken into account, and (2) the change in the exchange rate of the Canadian dollar. Although the latter was considered likely to result in higher prices on imported goods and ultimately in higher consumer prices, no evidence of this was available up to December 1961 as the index stood at just about the same level as in December 1960.

5.—Annual Consumer Price Index Numbers 1952-61, and Monthly Indexes 1960 to Mid-1962

(1949=100)

Year and Month	Food	Housing ¹	Clothing	Transportation ²	Health and Personal Care ²	Recreation and Reading ²	Tobacco and Alcohol ²	Composite Index
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	27	32	11	12	7	5	6	100
1952.....	116.8	118.0	111.8	117.4	117.8	115.7	113.3	116.5
1953.....	112.6	120.0	110.1	119.2	120.1	116.7	108.0	115.5
1954.....	112.2	121.6	109.4	120.0	124.5	119.5	107.3	116.2
1955.....	112.1	122.4	108.0	118.5	126.7	122.6	107.4	116.4
1956.....	113.4	124.2	108.6	123.3	130.0	125.3	107.7	118.1
1957.....	118.6	126.7	108.5	129.9	138.2	129.8	109.4	121.9
1958.....	122.1	129.0	109.7	133.8	145.4	138.4	110.6	125.1
1959.....	121.1	131.4	109.9	138.4	150.2	141.7	114.0	126.5
1960.....	122.2	132.7	110.9	140.3	154.5	144.3	115.8	128.0
1961.....	124.0	133.2	112.5	140.6	155.3	146.1	116.3	129.2
1960								
January.....	121.6	132.3	110.2	139.6	153.4	143.1	115.8	127.5
February.....	120.8	132.3	109.8	139.6	153.8	143.1	115.8	127.2
March.....	119.4	132.4	110.4	139.8	153.7	143.1	115.8	126.9
April.....	120.9	132.6	110.8	139.7	154.4	142.7	115.8	127.5
May.....	120.2	132.5	110.8	140.4	154.6	144.4	115.7	127.4
June.....	120.8	132.6	110.9	140.7	154.8	144.4	115.7	127.6
July.....	120.5	132.6	110.8	140.2	154.8	144.5	115.8	127.5
August.....	121.7	132.7	110.3	140.5	154.7	144.8	115.8	127.9
September.....	123.3	132.9	110.5	140.0	154.7	144.8	115.8	128.4
October.....	125.8	133.1	111.2	140.0	155.2	144.9	115.8	129.4
November.....	125.5	133.2	112.5	141.5	154.8	146.2	115.8	129.6
December.....	125.3	133.2	112.6	141.4	155.0	146.1	115.8	129.6
1961								
January.....	124.4	133.2	111.6	141.1	155.0	146.3	115.8	129.2
February.....	124.0	133.1	111.5	141.1	154.6	146.7	115.7	128.9
March.....	124.0	133.2	111.8	141.0	154.4	146.6	115.7	129.1
April.....	123.9	133.2	111.9	141.0	155.3	145.5	115.8	129.1
May.....	123.2	132.9	112.4	141.8	155.3	146.0	115.8	129.0
June.....	123.5	132.9	112.5	141.2	155.0	145.8	115.8	129.0
July.....	124.9	132.9	112.2	138.7	155.1	145.0	116.1	129.1
August.....	125.3	132.9	112.1	139.0	154.6	145.4	116.1	129.1
September.....	123.2	133.5	113.1	140.0	155.0	146.7	117.3	129.1
October.....	123.3	133.6	113.6	140.0	155.3	146.2	117.3	129.2
November.....	123.6	133.7	114.0	141.5	156.7	146.3	117.3	129.7
December.....	124.5	133.8	113.7	141.1	156.8	146.3	117.3	129.8
1962^p								
January.....	124.8	134.0	111.6	140.6	156.8	146.6	117.3	129.7
February.....	125.0	134.0	111.8	140.7	157.2	146.7	117.2	129.8
March.....	124.4	134.0	112.9	139.9	157.2	146.7	117.5	129.7
April.....	125.8	134.0	113.2	140.2	158.1	146.6	117.9	130.3
May.....	124.5	134.5	112.8	140.4	158.2	147.1	117.9	130.1
June.....	125.6	134.9	113.1	140.4	158.2	147.0	117.9	130.5

¹ Shelter and household operation combined. Services".

² Previously combined as "Other Commodities and

Table 6 provides single commodity price relatives on the base 1949 = 100 for a number of important foods entering into the food component of the consumer price index. It also provides a record of average prices based on the actual average level of prices prevailing in October 1952 and calculated for the other months on the basis of the price relatives.

6.—Urban Average and Relative Retail Prices of Staple Foods 1952-61, and by Month 1960 to Mid-1962

(1949=100)

Year and Month	Beef, sirloin, per lb.		Pork, rib chops, ¹ per lb.		Lard, pure, per lb.		Eggs, "A", fresh, per doz.		Milk, fresh, per qt.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1952.....	93.4	132.7	63.2	99.0	17.0	72.5	59.1	96.0	21.1	118.4
1953.....	79.6	113.0	72.5	113.7	20.8	88.4	67.6	109.9	21.1	118.5
1954.....	77.0	109.4	66.4 ¹	116.8 ¹	26.3	112.2	57.1	92.9	21.1	118.5
1955.....	80.0	113.6	61.5	108.2	22.4	95.2	61.5	99.9	21.1	118.5
1956.....	81.6	115.9	64.4	113.2	21.8	92.9	63.2	102.7	21.2	119.1
1957.....	84.3	119.7	74.6	131.1	25.6	109.0	56.0	91.0	22.5	126.2
1958.....	94.4	134.1	72.5	127.4	24.3	103.6	57.9	94.1	23.2	130.4
1959.....	101.0	143.5	67.6	118.9	18.3	80.3	54.4	88.4	23.4	131.0
1960.....	97.7	138.8	69.8	122.8	20.0	85.2	54.5	88.6	23.7	133.0
1961.....	97.1	138.0	72.8	128.0	23.1	98.2	56.3	91.5	23.5	132.0
1960										
January.....	100.4	142.6	66.4	116.8	18.1	77.1	41.9	68.2	23.7	133.1
February.....	95.6	135.8	65.6	115.4	17.9	76.3	41.2	66.9	23.7	133.1
March.....	93.5	132.8	63.5	111.7	18.3	78.0	47.4	77.1	23.7	133.1
April.....	91.9	130.5	63.3	111.4	18.4	78.4	56.1	91.2	23.7	133.1
May.....	94.2	133.8	63.6	111.9	18.9	80.5	50.0	81.3	23.7	133.1
June.....	95.6	135.8	65.1	114.5	19.2	81.8	46.8	76.1	23.7	133.1
July.....	98.3	139.6	74.0	130.1	19.8	84.4	52.1	84.7	23.7	133.1
August.....	101.7	144.5	75.1	132.0	20.5	87.3	56.7	92.2	23.7	133.1
September.....	102.0	144.9	74.5	131.0	21.7	92.5	65.3	106.1	23.7	133.1
October.....	102.0	144.8	76.5	134.5	22.0	93.7	66.2	107.6	23.7	133.1
November.....	98.9	140.5	74.7	131.3	22.4	95.4	68.0	110.6	23.7	133.1
December.....	98.8	140.3	75.3	132.4	22.7	96.7	62.1	100.9	23.5	132.0
1961										
January.....	100.1	142.2	76.0	133.6	22.8	97.1	53.5	87.0	23.5	132.0
February.....	97.9	139.1	74.4	130.8	22.8	97.1	49.4	80.3	23.5	132.0
March.....	97.2	138.1	74.2	130.5	23.9	101.8	52.2	84.9	23.5	132.0
April.....	96.8	137.5	70.5	124.0	24.5	104.4	49.3	80.1	23.5	132.0
May.....	94.6	134.3	68.2	120.0	23.9	101.8	49.1	79.8	23.5	132.0
June.....	93.9	133.4	71.8	126.3	23.7	101.0	51.0	82.9	23.5	132.0
July.....	94.8	134.6	73.3	128.9	23.1	98.4	55.1	89.6	23.5	132.0
August.....	95.3	135.4	75.0	131.9	22.9	97.6	59.4	96.6	23.5	132.0
September.....	96.7	137.4	74.2	130.5	22.4	95.4	65.4	106.4	23.5	132.0
October.....	98.6	140.1	73.8	129.8	22.4	95.4	65.9	107.1	23.5	132.0
November.....	97.3	138.2	72.0	126.6	22.2	94.6	68.1	110.7	23.5	132.0
December.....	102.5	145.6	69.8	122.8	22.1	94.1	56.7	92.1	23.5	132.0
1962^a										
January.....	106.3	150.9	69.9	123.0	22.1	94.1	48.7	79.2	23.5	132.0
February.....	102.6	145.7	68.2	120.0	21.7	92.4	49.7	80.8	23.5	132.0
March.....	95.6	135.8	68.2	120.0	22.0	93.7	52.7	85.6	23.8	133.7
April.....	99.4	141.1	68.7	120.9	21.9	93.3	51.7	84.0	23.8	133.7
May.....	100.9	143.3	69.1	121.6	21.7	92.4	48.4	78.7	23.8	133.7
June.....	106.0	150.5	73.9	129.9	21.9	93.3	45.0	73.1	23.5	132.0

¹ "Pork, fresh loins" prior to 1954.

6.—Urban Average and Relative Retail Prices of Staple Foods 1952-61, and by Month 1960 to Mid-1962—concluded

Year and Month	Flour, per lb.		Tomatoes, canned, 28-oz. tin		Potatoes, 10 lb.		Sugar, granulated, per lb.		Bread, per lb.	
	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative	Average Price	Price Relative
	cts.		cts.		cts.		cts.		cts.	
1952.....	7.4	105.9	28.8	143.6	68.6	196.9	11.2	121.0	12.1	119.3
1953.....	7.6	108.9	24.4	121.8	39.0	111.8	10.0	107.8	12.3	121.5
1954.....	7.7	110.2	21.5	107.4	37.5	107.6	9.4	101.8	12.8	126.8
1955.....	7.4	106.4	26.3	131.3	46.8	134.5	9.2	99.7	12.8	126.4
1956.....	7.6	108.8	27.3	136.1	49.7	142.6	9.3	100.4	13.3	131.6
1957.....	7.9	113.3	29.1	144.8	42.1	120.8	12.3	133.1	14.3	141.4
1958.....	8.0	114.3	26.6	132.2	45.7	131.2	10.6	114.4	14.8	146.3
1959.....	8.4	119.9	27.3	136.1	48.9	140.3	9.4	101.4	15.2	150.9
1960.....	8.8	125.5	27.8	138.2	58.0	166.5	9.4	101.7	15.6	154.5
1961.....	9.0	128.9	27.0	134.5	47.8	137.2	9.6	103.8	15.9	157.6
1960										
January.....	8.6	123.4	27.2	135.5	53.6	153.9	9.1	98.6	15.2	150.9
February.....	8.7	124.8	27.5	137.0	57.8	166.0	9.1	98.6	15.2	150.9
March.....	8.6	123.4	27.5	137.0	57.3	164.6	9.1	98.6	15.2	150.9
April.....	8.7	124.8	27.6	137.5	66.7	191.4	9.2	99.7	15.6	154.9
May.....	8.7	124.8	27.7	138.0	70.5	202.3	9.2	99.7	15.6	154.9
June.....	8.7	124.8	27.9	139.0	76.0	218.1	9.3	100.8	15.7	155.9
July.....	8.7	124.8	28.0	139.5	69.8	200.3	9.3	100.8	15.7	155.9
August.....	8.8	126.3	28.1	140.0	56.6	162.6	9.5	103.0	15.7	155.9
September.....	8.8	126.3	28.1	140.0	46.5	133.5	9.7	105.1	15.7	155.9
October.....	8.9	127.7	28.0	139.5	46.1	132.4	9.7	105.1	15.7	155.9
November.....	8.9	127.7	27.8	138.5	47.3	135.8	9.7	105.1	15.7	155.9
December.....	8.9	127.7	27.6	137.5	47.9	137.5	9.7	105.1	15.7	155.9
1961										
January.....	8.9	127.7	27.4	136.5	48.6	139.6	9.6	104.1	15.7	155.9
February.....	8.9	127.7	27.3	136.0	48.2	138.4	9.6	104.1	15.7	155.9
March.....	8.9	127.7	27.5	137.0	48.4	139.0	9.6	104.1	15.7	155.9
April.....	8.9	127.7	27.1	135.0	48.6	139.6	9.6	104.1	15.7	155.9
May.....	8.9	127.7	28.7	133.0	49.9	143.3	9.6	104.1	15.7	155.9
June.....	8.9	127.7	28.9	134.0	51.4	147.6	9.7	105.1	15.7	155.9
July.....	8.9	127.7	26.8	133.5	60.3	173.1	9.6	104.1	15.7	155.9
August.....	8.9	127.7	27.0	134.5	53.2	152.7	9.6	104.1	16.3	161.1
September.....	9.1	130.6	26.8	133.5	43.2	124.1	9.5	103.0	16.3	161.1
October.....	9.1	130.6	26.9	134.0	40.8	117.2	9.5	103.0	16.0	159.0
November.....	9.2	132.0	26.7	133.0	39.9	114.6	9.5	103.0	16.2	160.1
December.....	9.2	132.0	26.9	134.0	41.0	117.8	9.5	103.0	16.0	159.0
1962*										
January.....	9.3	133.5	26.8	133.5	42.0	120.6	9.4	101.9	16.2	160.1
February.....	9.4	134.9	26.7	133.0	42.3	121.5	9.4	101.9	16.3	161.1
March.....	9.5	136.4	26.7	133.0	42.7	122.7	9.4	101.9	16.3	161.1
April.....	9.6	137.8	26.5	132.0	42.7	122.7	9.4	101.9	16.4	162.1
May.....	9.7	139.3	26.7	133.0	44.0	126.4	9.4	101.9	16.4	162.1
June.....	9.8	140.7	26.6	132.5	50.4	144.7	9.4	101.9	16.4	162.1

Consumer Price Indexes for Regional Cities.—Table 7 gives regional consumer price indexes for ten cities or city combinations. These indexes do not show whether it costs more or less to live in one city than in another and should not be used for such comparison. Their function is to measure percentage changes in retail prices—over a certain time in each city or city combination—of a fixed basket of goods and services representing the level of consumption of a particular group of families.

**7.—Consumer Price Indexes for Regional Cities 1952-61, and by Month
1960 to Mid-1962**

(1949=100)

Year and Month	St. John's, Nfld. (1951 =100)	Halifax, N.S.	Saint John, N.B.	Mont- real, Que.	Ottawa, Ont.	Toronto, Ont.	Winnipeg, Man.	Saskatoon- Regina, Sask.	Edmonton- Calgary, Alta.	Vancouver, B.C.
1952.....	103.5	115.3	117.4	117.6	116.8	117.5	116.1	112.8	114.8	117.4
1953.....	102.2	113.2	115.3	116.3	115.0	116.8	114.4	113.1	114.0	116.1
1954.....	102.8	114.1	116.6	116.8	116.2	118.3	115.3	114.2	114.9	117.4
1955.....	104.2	114.8	117.7	116.9	117.2	118.8	115.9	114.6	114.6	117.9
1956.....	106.8	116.1	118.8	118.4	119.2	120.6	117.2	115.8	115.7	119.6
1957.....	109.4	119.8	123.6	121.8	123.2	125.2	120.0	119.1	118.8	122.6
1958.....	112.0	122.9	125.3	125.5	125.5	128.6	123.0	122.0	121.4	125.6
1959.....	114.3	125.9	127.7	126.9	126.9	128.9	123.7	123.1	123.0	127.9
1960.....	115.5	127.2	129.2	127.9	128.6	130.4	125.6	124.4	124.1	129.0
1961.....	116.7	128.5	130.2	129.3	130.2	131.2	127.5	125.4	125.0	129.4
1960										
January.....	114.7	127.1	129.1	127.8	128.1	129.7	124.7	123.8	123.6	129.3
February.....	114.8	127.0	129.1	127.5	127.6	129.7	124.1	123.5	123.2	129.1
March.....	114.5	126.7	128.9	126.5	127.4	129.2	124.0	123.4	123.3	128.7
April.....	115.6	127.0	129.1	127.6	128.0	129.7	124.7	123.6	123.4	128.2
May.....	115.9	126.8	128.6	127.2	127.7	129.8	124.8	123.4	123.3	128.1
June.....	116.2	127.0	128.6	127.8	128.6	130.2	125.0	123.7	123.2	127.7
July.....	116.5	126.4	128.6	127.2	128.2	130.1	125.4	124.0	123.6	127.5
August.....	116.1	126.7	129.0	127.5	128.3	130.3	125.8	124.8	124.3	128.3
September.....	114.8	127.1	129.2	127.7	129.0	130.7	126.2	125.6	125.1	129.2
October.....	115.0	128.1	130.0	129.1	130.2	132.1	127.1	125.7	125.6	130.5
November.....	115.9	128.4	130.0	129.7	130.2	131.9	127.7	125.5	125.7	130.8
December.....	116.3	128.4	130.3	129.7	130.1	131.8	127.8	125.4	125.3	130.7
1961										
January.....	116.2	127.9	130.0	129.4	129.7	131.2	127.3	125.1	125.1	130.3
February.....	116.2	128.0	129.8	129.4	129.4	131.0	126.9	124.5	124.7	129.9
March.....	116.5	128.0	129.7	129.0	130.1	130.9	127.0	124.8	124.5	129.6
April.....	116.8	128.5	129.9	128.7	129.6	130.4	127.0	124.8	124.5	129.9
May.....	116.7	128.0	129.7	127.9	129.0	130.2	126.6	124.6	124.2	129.1
June.....	117.0	127.8	129.7	128.3	129.0	130.2	126.7	124.7	124.2	128.4
July.....	116.9	127.8	129.7	128.5	129.1	130.5	126.9	125.2	124.4	128.2
August.....	117.9	128.7	131.2	128.8	129.8	130.9	127.3	126.0	125.0	128.5
September.....	116.7	128.8	130.8	129.5	131.2	132.3	127.9	126.4	125.5	129.0
October.....	116.5	129.2	130.8	130.4	132.1	132.5	128.7	126.8	126.0	129.6
November.....	116.4	129.7	130.8	130.8	131.8	131.9	128.9	126.4	125.7	130.1
December.....	116.5	129.5	130.7	130.9	131.6	131.9	128.9	126.1	125.8	130.1
1962^p										
January.....	116.4	129.3	130.5	130.2	130.9	131.6	128.7	126.5	125.7	130.1
February.....	116.6	129.6	130.7	130.1	131.0	131.7	128.1	126.7	125.1	129.6
March.....	116.7	129.7	130.8	130.1	131.0	131.7	128.3	126.7	125.0	129.2
April.....	117.4	130.0	131.1	130.5	131.7	132.1	128.9	127.3	125.5	129.2
May.....	117.6	129.2	130.8	130.2	131.2	131.7	128.7	126.9	125.5	129.1
June.....	117.4	129.6	130.9	130.5	131.7	132.3	129.1	127.4	125.9	129.4

World Retail Price Indexes.—In order to place changes in Canadian retail prices in perspective with those occurring elsewhere, Table 8 provides retail price indexes for selected countries for 1958, 1959 and 1960. These indexes measure price changes only within each country and should not be used to compare actual levels of living costs from country to country.

8.—Index Numbers of Retail Prices in Canada and Other Countries, 1958-60

(BASE: 1953=100. SOURCE: *United Nations Monthly Bulletin of Statistics*, November 1958, 1959 and 1960.)

Country	1958	1959	1960	Country	1958	1959	1960
Belgium.....	108	110	110	India.....	109	114	116
Brazil.....	237	326	439	Iran.....	138	152	164
Britain.....	119	120	121	Israel.....	139	141	144
Canada.....	108	110	111	Korea, South.....	339	353	382
Chile.....	752	1,043	1,164	Netherlands.....	117	119	121
Denmark.....	117	..	..	New Zealand.....	118	123	124
Dominican Republic.....	102	102	98	Norway.....	118	120	121
Egypt.....	102	..	..	Sweden.....	119	120	124
France (Paris).....	122	129	134	Switzerland.....	107	106	108
Germany, Federal Republic of	109	110	111	Turkey.....	171	216	228
Greece.....	131	134	..	United States.....	108	109	111

Section 3.—Consumer Expenditure Surveys

A continuing program of surveys of family income and expenditure in urban areas was begun in 1953 and surveys have been conducted since then at two-year intervals. The primary purpose of these surveys has been to collect information for reviewing and revising, if necessary, the weights of the consumer price index. The surveys have therefore been restricted to cover only those families which were comparable in family composition and income level to the consumer price index target group which was selected for index number purposes from a nation-wide survey conducted in 1947-48. For each of the three survey periods covering 1953, 1955 and 1957, respectively, the program consisted of a series of monthly surveys in which the major objective was the collection of detailed expenditure data on food, followed by a recall survey of all expenditures and income for the same calendar year. Detailed results for each survey have been published in two series of occasional publications, of which the latest are *Urban Family Food Expenditure, 1957*, (Catalogue No. 62-516) and *City Family Expenditure, 1957* (Catalogue No. 62-517).

The 1959 survey, carried out in March and April of 1960, marked a departure from this pattern in that the program of monthly food expenditure surveys was omitted, and the universe of the recall survey was enlarged to include all families and individuals, regardless of income level, in urban centres of 15,000 or over. The results shown in Tables 9 and 10 are therefore not comparable with results of the nine-city expenditure survey of 1957.

Table 9 shows how expenditure patterns varied among families grouped by income levels. For the basic necessities of food and shelter, expenditure per family increased as income rose, but relative importance of these categories in total expenditure decreased from 58 p.c. for families with incomes under \$2,500 to 39 p.c. for families with incomes of \$10,000 and over. Relative expenditure on household operation also declined fractionally as income rose. The proportions spent on clothing and other commodities and services, which included transportation, personal care, medical care and recreation, increased as income rose. The largest relative increase was shown by gifts and contributions and personal taxes and security which increased from 5 p.c. in the lowest income groups to 25 p.c. in the highest.

9.—Average Family Expenditure, by Income Group, in Cities of 15,000 Population or Over, 1959
(Families of two or more)

Table 10 shows average dollar expenditure per family by main expenditure categories for families of two or more, by main regions and for the composite of 60 urban centres. The expenditure pattern of one-person units is shown only for the composite of 60 urban centres. It should be noted that the term "family" in these surveys is used synonymously with *spending unit*, which is defined as a group of persons dependent on a common or pooled income for the major items of expense, and living in the same dwelling. One-person spending units are defined as financially independent individuals; this group, however, does not include unmarried sons or daughters living in their parents' households.

Average of total family expenditure for 1,672 families in 60 urban centres was \$5,570, or \$1,505 per person. Although the level of family expenditure was \$740 higher than expenditure of the restricted group surveyed in 1957, the percentage distribution of expenditure among main consumption categories was not significantly different. Approximately 40 p.c. of 1959 expenditure of families of two or more was allocated to food and shelter, with 23.8 p.c. going to food and 16.4 p.c. to housing, fuel, light and water. About 4 p.c. of total family expenditure was for household operation, 5 p.c. for furnishings and equipment and 9 p.c. for clothing. The remaining expenditure on commodities and services amounted to 27 p.c., of which automobile purchase and operation constituted 9 p.c. Outlays not classified as current consumption, representing gifts, contributions, personal taxes and security were 15 p.c. of total expenditure.

Shelter was a major item in the outlay of one-person units, amounting to 22.4 p.c. of total expenditure, while food accounted for 21.6 p.c. The proportions allocated to other categories of current consumption were generally below those for families of two or more. Gifts and contributions bulked more largely in the one-person pattern, averaging 6.1 p.c. of total expenditure in contrast to 3.0 for families of two or more.

10.—Average Family Expenditure, by Regions, in Cities of 15,000 or Over, 1959

Item	Families of Two or More						One-Person Units
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada Composite	Canada Composite
Number of urban centres.....	9	12	26	9	4	60	60
Number of families.....	144	405	571	346	206	1,672	288
Average family size.....	4.17	3.99	3.53	2.64	3.50	3.70	1.00
DOLLARS PER FAMILY							
Food.....	1,351	1,480	1,234	1,296	1,295	1,323	—
Housing, fuel, light, water.....	785	592	953	869	902	911	—
Household operation.....	195	203	223	208	221	214	—
Furnishings and equipment.....	233	250	275	334	316	277	—
Clothing.....	407	603	463	530	474	508	—
Other commodities and services.....	1,185	1,442	1,558	1,641	1,598	1,518	—
Gifts and contributions, personal taxes, security.....	604	746	868	876	854	819	—
Totals.....	4,760	5,616	5,574	5,754	5,660	5,570	—
DOLLARS PER PERSON							
Food.....	322	370	350	356	370	358	531
Housing, fuel, light, water.....	187	223	270	239	258	246	551
Household operation.....	47	51	63	57	63	58	101
Furnishings and equipment.....	56	63	78	92	90	75	70
Clothing.....	97	151	131	145	135	137	201
Other commodities and services.....	283	360	441	451	457	410	601
Gifts and contributions, personal taxes, security.....	144	186	246	241	244	221	401
Totals.....	1,136	1,404	1,579	1,581	1,617	1,505	2,456

10.—Average Family Expenditure, by Regions, in Cities of 15,000 or Over, 1959—concluded

Item	Families of Two or More						One-Person Units
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada Composite	Canada Composite
	PERCENTAGE DISTRIBUTION						
Food.....	28.4	26.4	22.1	22.5	22.9	23.8	21.6
Housing, fuel, light, water.....	16.5	15.9	17.1	15.1	15.9	16.4	22.4
Household operation.....	4.1	3.6	4.0	3.6	3.9	3.8	4.1
Furnishings and equipment.....	4.9	4.4	4.9	5.8	5.6	5.0	2.9
Clothing.....	8.6	10.7	8.3	9.2	8.4	9.1	8.2
Other commodities and services.....	24.8	25.7	28.0	28.6	28.2	27.2	24.5
Gifts and contributions, personal taxes, security.....	12.7	13.3	15.6	15.2	15.1	14.7	16.3
Totals.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Section 4.—Index Numbers of Security Prices

Investors price indexes for common stocks are calculated on the 1935-39 base* and published weekly and monthly for a sample of issues, broadly classified under the headings: industrials, public utilities and banks. Within the first category the sample is further classified by industry. Weekly and monthly indexes of mining stocks including both golds and base metals are calculated and published separately, as are monthly indexes of preferred stocks.

For purposes of index calculation, Thursday closing prices are used for the issues of companies listed on either or both the Montreal and Toronto stock exchanges. Weights are applied to each issue on the basis of the number of shares currently outstanding. The list of stocks included in the various security series (which at January 1962 totalled 88 for the investors index and 27 for the mining stocks index) are revised annually so that issues that have become important in stock market activity may be included and those of declining interest removed. Provision is also made for stock splits, mergers and the exercise of 'rights'. The indexes are designed to reflect weekly and monthly changes of interest to the investor rather than day-to-day changes of more speculative interest. For that reason the historical record of indexes dating back to January 1914 on a monthly basis is of significance in any analysis of the degree of fluctuation in stock prices through time.

Investors Index.—A continuation of the strong upward trend inaugurated with the inception of the bull market in December 1953 culminated in a new high in the investors total index of 291.8 in August 1956; the September 1929 peak was 197.8. Subsequent sharp declines that brought the level to 262.3 by November 1956 were reversed in December, and by May 1957 losses had been largely recouped. In mid-1957 prices broke sharply and commenced a seven-month slide to 215.4 by January 1958. At this point the index swung upward to 262.1 in October, continued slowly higher to 279.3 in July 1959, only to break sharply in September. Later it fluctuated moderately, touching a low of 211.7 in October 1960, after which the index again moved strongly upward. In March the index broke through the ceiling and continued strongly to 333.3 at December 1961, for a new all-time high. The major group indexes all moved up over the period January-December 1961 as follows: banks 21.6 p.c., industrials 21.1 p.c., and utilities 15.7 p.c. All sub-groups advanced; in industrials increases were headed by beverages, industrial mines, and textiles and clothing; in utilities, transportation and telephones were up sharply while power and traction showed only a small rise.

* Text and indexes presented here are on the 1935-39-100 base (except the four supplementary indexes). In the 1963 edition of the Year Book, revised indexes on the base 1956-199 will replace the present series. An outline of the revision and historical indexes on the new base are available on request from the Prices Division, Dominion Bureau of Statistics.

11.—Investors Index Numbers of Common Stocks, by Month, 1960 to Mid-1962:

(1935-39=100)

Year and Month	Industrials							Public Utilities				Banks, Total	In- vestors Com- posite Index			
	Ma- chinery and Equip- ment	Pulp and Paper	Milling and Grains	Oils	Tex- tiles and Cloth- ing	Food and Alcohol Prod- ucts	Bever- ages	Build- ing Ma- terials	Indus- trial Mines	Indus- trial, Total	Trans- por- tation			Tele- phone	Power and Trac- tion	Utili- ties, Total
1960																
January.....	741.9	1,156.8	204.2	180.2	203.2	224.5	656.0	518.0	205.5	287.6	302.0	115.6	207.9	191.0	332.8	259.2
February.....	713.0	1,080.0	194.0	173.8	197.2	216.8	634.6	488.7	203.1	287.9	298.6	115.8	195.3	186.8	316.3	249.9
March.....	671.4	1,068.1	181.5	170.8	190.0	215.8	611.0	462.2	195.6	249.3	287.6	116.9	189.8	184.5	305.8	242.3
April.....	682.2	1,101.4	181.8	173.2	189.1	230.0	625.9	469.2	206.9	256.7	306.4	119.3	188.1	188.2	309.1	248.8
May.....	699.2	1,124.7	181.3	168.0	189.0	224.5	632.5	466.7	211.2	257.4	304.8	119.0	184.8	180.6	308.8	249.2
June.....	685.7	1,156.6	190.6	165.4	189.5	228.0	643.3	465.8	217.6	258.3	302.2	120.4	184.8	190.6	317.7	251.0
July.....	636.7	1,111.7	182.5	161.9	183.6	233.6	638.9	423.2	213.0	249.8	287.6	121.0	188.8	187.3	311.5	243.6
August.....	651.2	1,124.7	189.8	172.0	180.0	239.3	641.7	424.4	213.3	255.3	289.6	123.8	184.8	191.6	322.9	249.3
September.....	635.6	1,127.2	200.0	175.5	180.7	245.4	646.7	425.2	206.1	254.2	277.8	124.8	197.2	191.7	329.3	248.9
October.....	634.9	1,083.3	201.0	169.8	171.6	243.8	654.4	416.0	195.8	246.5	262.4	123.7	193.8	187.8	318.6	241.7
November.....	642.5	1,093.0	210.9	180.9	181.0	248.8	674.2	417.4	213.8	258.0	261.4	125.4	191.1	188.2	328.5	251.1
December.....	681.9	1,121.6	210.3	183.2	181.9	258.9	697.7	420.0	228.6	268.0	266.9	126.9	200.4	193.0	338.1	260.2
1961																
January.....	727.7	1,190.1	211.7	200.4	180.5	272.3	720.1	456.4	243.5	286.0	276.5	130.7	212.1	200.7	358.7	276.6
February.....	741.4	1,223.8	219.2	208.6	183.0	260.1	755.3	470.3	252.1	295.7	289.3	131.8	220.8	205.9	364.8	285.3
March.....	758.9	1,277.7	227.4	217.3	195.9	287.7	793.0	486.8	264.2	307.4	290.0	132.1	221.1	208.8	371.8	294.6
April.....	801.0	1,282.2	226.0	227.8	202.2	303.0	806.8	491.3	280.1	319.6	297.4	134.6	220.2	208.8	371.8	304.8
May.....	809.3	1,282.5	241.0	231.7	210.4	322.6	855.6	490.9	311.7	333.4	321.7	145.4	221.8	220.7	383.4	317.6
June.....	781.6	1,294.0	247.8	229.4	213.5	321.4	872.1	499.4	306.5	330.9	324.9	148.7	220.0	223.2	385.5	316.4
July.....	749.8	1,341.9	249.6	223.0	222.8	320.8	879.1	500.7	328.4	335.0	320.9	147.2	214.3	219.7	391.4	319.3
August.....	738.4	1,381.0	252.6	232.3	224.5	338.6	929.4	508.6	336.1	344.1	322.3	147.8	214.8	220.7	409.3	327.6
September.....	700.6	1,364.1	247.8	233.4	228.0	334.5	952.0	513.4	337.1	341.4	326.8	150.4	217.3	224.0	406.2	325.9
October.....	665.0	1,271.7	256.9	230.8	226.0	327.1	949.3	512.0	321.2	332.0	333.0	153.2	218.7	226.8	419.2	319.2
November.....	673.2	1,323.4	249.7	240.6	260.5	331.3	998.5	521.0	319.2	339.3	330.9	157.2	216.7	230.7	417.0	326.3
December.....	679.8	1,344.5	249.6	246.8	251.8	332.8	993.6	522.7	334.5	346.4	334.8	158.2	220.0	232.3	436.0	333.3
1962																
January.....	691.4	1,322.6	240.8	249.2	259.0	318.6	995.6	534.8	328.4	345.6	336.2	155.4	215.3	228.9	424.2	331.3
February.....	682.2	1,370.8	238.7	246.6	267.3	316.8	1,014.2	555.4	320.8	344.4	340.6	157.5	210.4	230.0	415.8	329.8
March.....	690.0	1,423.7	236.0	243.9	268.5	316.8	1,048.5	555.9	318.0	347.4	334.8	157.9	204.5	227.9	413.9	331.6
April.....	657.3	1,429.3	237.0	237.1	260.5	304.8	1,023.8	553.0	313.7	340.2	336.7	154.5	203.9	225.2	404.0	325.0
May.....	621.1	1,397.7	225.8	221.3	251.9	292.3	982.2	516.3	300.3	323.7	329.8	148.3	204.0	219.2	387.4	310.3
June.....	545.2	1,276.9	205.8	206.8	235.7	265.3	887.2	458.4	259.4	289.8	309.4	139.6	184.2	204.2	342.8	278.9

Four supplementary indexes of common stock prices, relating to important categories of stocks not covered by existing series, were introduced in May 1960. These are published as interim indexes pending complete revision of the security price indexes. The price reference date for the new series is 1956; construction and weighting methods conform to those of existing indexes. Each of the four supplementary indexes advanced between January and December 1961 as follows: primary oils and gas 56.0 p.c., investment and loan 49.7 p.c., pipelines 33.0 p.c., and uraniums 15.5 p.c. For comparison, Table 12 shows related existing series from Table 11 converted to the 1956=100 base.

12.—Index Numbers of Common Stocks, by Month, 1960 to Mid-1962¹

(1956=100)

Year and Month	Utilities ²	Pipelines	Banks ²	Investment and Loan	Mining ²	Uraniums	Industrial Oils ²	Primary Oils and Gas
1960								
January.....	92.6	118.0	120.7	118.5	85.1	68.2	81.5	60.7
February.....	90.5	110.4	114.7	110.8	82.1	62.8	78.6	56.9
March.....	89.4	109.6	110.9	110.5	79.9	58.8	77.3	55.0
April.....	91.2	107.2	112.1	114.6	78.2	58.9	78.3	53.4
May.....	91.2	102.9	112.0	115.8	72.9	57.3	76.0	47.3
June.....	92.4	99.5	115.2	119.9	71.5	53.9	74.8	44.6
July.....	90.8	96.4	113.0	119.2	71.0	55.4	73.2	42.2
August.....	92.9	99.8	117.1	123.3	75.4	55.1	77.8	44.4
September.....	92.9	106.0	119.4	128.2	77.4	57.4	79.4	46.1
October.....	91.0	105.7	115.5	123.1	79.9	59.5	76.8	44.1
November.....	91.2	109.7	119.1	123.8	82.0	62.0	81.8	43.0
December.....	93.6	109.7	122.6	129.9	80.7	59.8	82.1	40.8
1961								
January.....	97.3	116.4	130.1	136.7	86.0	65.2	90.6	46.4
February.....	99.8	121.0	132.2	145.3	82.5	65.8	94.5	55.0
March.....	99.9	127.6	134.8	154.4	83.5	68.6	98.3	60.0
April.....	101.2	137.9	137.0	164.8	86.7	70.0	103.0	59.9
May.....	107.0	142.1	139.0	175.9	91.1	71.6	104.8	60.2
June.....	108.2	137.8	139.8	179.6	90.7	71.5	103.7	58.2
July.....	106.5	133.8	141.9	185.2	96.0	71.8	100.9	53.8
August.....	107.0	139.9	148.4	189.3	101.1	73.5	105.1	58.1
September.....	108.6	139.9	147.3	191.6	97.6	72.8	105.6	58.6
October.....	110.0	142.4	146.5	193.0	97.6	76.0	104.4	59.5
November.....	111.8	149.2	151.2	204.8	102.9	78.9	108.8	66.7
December.....	112.6	154.8	158.0	204.6	103.7	75.3	111.6	72.4
1962								
January.....	110.9	155.0	153.8	197.6	103.6	75.9	112.7	69.4
February.....	111.5	154.1	150.8	196.4	101.4	78.2	111.5	73.9
March.....	110.5	154.2	150.1	194.7	100.9	79.6	110.3	72.6
April.....	109.2	150.0	146.5	185.6	99.8	81.2	107.2	67.8
May.....	105.2	144.6	140.4	169.9	101.6	79.7	100.1	62.2
June.....	99.0	127.2	124.3	145.5	99.6	70.6	93.5	53.5

¹ See footnote to p. 937.

² Converted to 1956=100 base for comparability; see Table 13.

Mining Stocks.—Mining stocks rose strongly in 1961 from 115.5 in January to 139.3 in December for a gain of 20.6 p.c.; the advance reflected chiefly increases for base metals for which the index rose 39.6 p.c. from 188.0 to 262.4. Golds, after weakness early in the year, rallied for a 2.0 p.c. rise from 83.9 to 85.6.

13.—Weighted Index Numbers of Prices of Mining Stocks, by Month, 1958 to Mid-1962¹

(1935-39=100)

Year and Month	Gold	Base Metals	Com- posite	Year and Month	Gold	Base Metals	Com- posite
1958				1960—concluded			
January.....	64.0	154.6	91.5	May.....	67.8	167.2	98.0
February.....	68.3	157.2	95.3	June.....	64.9	167.4	96.0
March.....	67.8	161.7	96.4	July.....	64.7	166.0	95.5
April.....	69.0	155.0	95.2	August.....	71.4	169.9	101.4
May.....	72.5	160.7	99.3	September.....	73.5	173.8	104.0
June.....	73.8	173.3	104.1	October.....	79.9	170.3	107.4
July.....	72.1	174.7	103.2	November.....	81.2	176.9	110.2
August.....	74.3	179.3	106.2	December.....	78.1	178.2	108.5
September.....	73.8	182.0	106.7				
October.....	74.7	205.1	114.4	1961			
November.....	77.9	208.8	117.6	January.....	83.9	188.0	115.5
December.....	80.6	197.5	116.1	February.....	75.9	190.8	110.8
1959				March.....	72.4	203.6	112.3
January.....	85.6	211.2	123.7	April.....	72.1	218.2	116.6
February.....	85.7	214.8	124.9	May.....	73.6	224.4	122.5
March.....	86.1	219.4	126.6	June.....	73.8	232.1	121.9
April.....	85.5	201.2	120.6	July.....	77.2	247.4	129.0
May.....	87.0	194.0	119.5	August.....	85.3	251.5	135.8
June.....	87.0	193.4	119.4	September.....	83.3	241.0	131.2
July.....	87.3	196.9	120.6	October.....	82.5	242.4	131.1
August.....	86.1	196.9	119.8	November.....	86.0	257.6	138.2
September.....	82.0	179.2	111.5	December.....	85.6	262.4	139.3
October.....	82.7	179.9	112.2				
November.....	82.6	181.3	112.6	1962			
December.....	82.3	182.8	112.8	January.....	85.1	263.3	139.3
1960				February.....	83.2	257.9	136.4
January.....	82.4	187.8	114.4	March.....	82.9	256.4	135.6
February.....	82.0	175.6	110.4	April.....	81.5	254.5	134.1
March.....	82.5	164.4	107.4	May.....	88.5	246.4	136.5
April.....	78.4	166.4	105.1	June.....	93.6	226.2	133.9

¹ See footnote to p. 937.

Preferred Stocks.—The index of preferred stocks advanced slowly in 1961, showing a 5.1-p.c. gain from 157.9 in January to 166.0 in December.

14.—Index Numbers of Preferred Stocks, by Month, 1953 to Mid-1962¹

(1935-39=100)

NOTE.—Figures for 1927-45 are given in the 1948-49 Year Book, p. 958, and for 1946-52 in the 1956 edition, p. 1045.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Av.
1953.....	161.0	161.6	163.6	161.6	162.9	163.0	163.8	164.3	162.0	161.0	161.6	161.7	162.3
1954.....	162.6	163.6	165.4	168.0	169.7	170.7	171.3	173.0	173.4	174.1	175.4	175.4	170.2
1955.....	175.6	176.0	176.2	175.4	176.1	177.9	179.5	179.9	179.0	179.2	176.6	173.9	177.2
1956.....	175.5	175.3	173.6	171.1	167.7	166.2	167.5	166.1	161.7	158.7	157.0	154.4	166.2
1957.....	155.9	158.4	154.8	153.4	153.1	150.8	150.0	149.4	147.3	146.1	147.6	151.1	151.3
1958.....	154.0	156.4	157.5	158.5	161.6	163.9	162.4	163.4	163.9	162.7	162.7	159.8	160.6
1959.....	158.1	159.5	159.8	160.0	161.9	160.5	160.8	159.2	155.3	151.0	150.1	149.9	157.2
1960.....	149.2	148.7	147.2	146.6	148.9	152.4	155.1	156.4	157.5	157.5	157.3	156.8	152.8
1961.....	157.9	158.2	157.7	159.6	161.4	162.3	163.5	163.4	165.4	167.4	167.2	166.0	162.5
1962 ^p	167.8	167.7	168.3	168.9	169.6	165.1

¹ See footnote to p. 937.

CHAPTER XX.—FOREIGN TRADE

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

The subject of foreign trade covers more than the treatment of exports and imports of commodities, important though this is. In its broader sense foreign trade is made up of the total international interchange of goods, services, securities and other financial transactions, all of which are presented in their appropriate relationship in this Chapter. Following Part I, which is a review of Canada's trade during recent years, Part II gives detailed statistics of external commodity trade. Part III outlines the various ways in which the Federal Government promotes and encourages trade relationships, and contains a brief review of the Canadian tariff structure. Part IV gives a fairly detailed review of the extent of international travel between Canada and other countries in 1960 with estimates of the amount of money expended for this purpose.

PART I.—RECENT DEVELOPMENTS IN CANADA'S FOREIGN TRADE*

The value of Canada's external trade in 1961 was considerably greater than in any previous year. Total trade—exports and imports together—was valued at \$11,666,800,000 in 1961, an increase of 7.3 p.c. above the total for the previous year of \$10,869,500,000. For the first time since 1952 there was an export trade surplus, which amounted to \$124,700,000 as compared with an import balance of \$95,900,000 in 1960. Both exports and imports showed gains, particularly in the last half of the year, although part of this increase was a reflection of the difference in the exchange value of the Canadian dollar. Total exports rose by 9.4 p.c. in 1961, advancing to \$5,895,700,000 from \$5,386,800,000 in 1960, and imports gained 5.3 p.c., increasing to \$5,771,000,000 in 1961 as against \$5,482,700,000 in the preceding year.

Over the period from 1956 to 1960 export prices remained relatively stable, declining fractionally in the first three years and then advancing by 1.8 p.c. in 1959 and very slightly in 1960. During 1961, the average index of export prices rose approximately 1 p.c. but

* Prepared in the External Trade Division, Dominion Bureau of Statistics.

the enhanced value of exports was attributable mainly to the greater volume of goods moved, especially in the second half of the year. Import prices rose modestly during the same period, except for a 1.8-p.c. decrease in 1959. Following the mid-1961 decline in the foreign exchange value of the Canadian dollar, the average index of import prices advanced considerably and for the year showed an increase of 3.2 p.c. over the 1960 level, while the index of physical volume of imports rose by 2.0 p.c. Table 1 traces the movements in Canadian trade totals and in the indexes of price and volume over the five years 1957-61, and also shows percentage changes during 1960 and 1961.

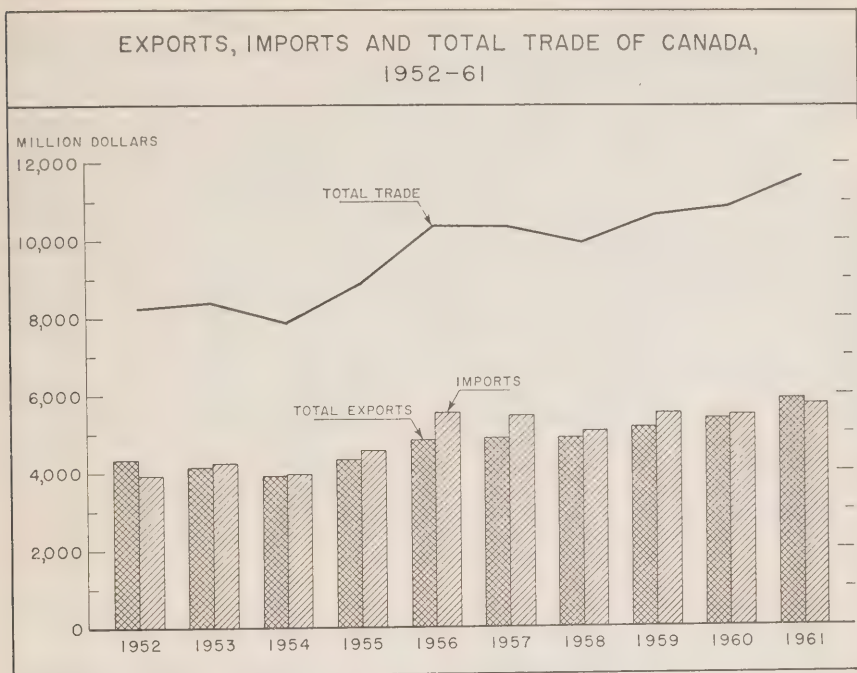
1.—Summary Statistics of Canada's Foreign Trade, 1957-61

Item	1957	1958	1959	1960	1961	Change	
						1959 to 1960	1960 to 1961
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	p.c.	p.c.
Value of Trade—¹							
Total exports.....	4,884.1	4,894.3	5,140.3	5,386.8	5,895.7	+ 4.8	+ 9.4
Domestic exports.....	4,788.9	4,791.4	5,021.7	5,255.6	5,755.5	+ 4.7	+ 9.5
Re-exports.....	95.3	102.9	118.6	131.2	140.2	—	—
Imports.....	5,473.3	5,050.5	5,508.9	5,482.7	5,771.0	- 0.5	+ 5.3
Total Trade.....	10,357.5	9,944.8	10,649.2	10,869.5	11,666.8	+ 2.1	+ 7.3
Trade Balance.....	-589.2	-156.1	-368.6	- 95.9	+124.7	...	...
Price Indexes (1948=100)—							
Domestic exports.....	121.0	120.6	122.8	123.0	124.2	+ 0.2	+ 1.0
Imports.....	116.4	116.5	114.4	115.5	119.2	+ 1.0	+ 3.2
Terms of trade.....	104.0	103.5	107.3	106.5	104.2	- 0.7	- 2.2
Volume Indexes (1948=100)—							
Domestic exports.....	129.3	130.4	134.2	140.2	152.1	+ 4.5	+ 8.5
Imports.....	179.6	165.6	183.9	181.3	184.9	- 1.4	+ 2.0

¹ Revised to cover the adjustment for "Special Transactions—Non-Trade" (see p. 949).

The general trend of Canada's trade during the ten years 1952-61 is also shown in the chart on p. 943 and the higher level of both exports and imports attained during the latter half of the period is noticeable. Large increases were made in 1955 and 1956, the total value of Canadian trade reaching a higher plateau. In 1957 and 1958, exports were virtually unchanged and there was a considerable decline in imports in 1958, but in 1959 and 1960 exports again climbed and imports generally regained their earlier level. During most of 1961 there was an upward trend in both export and import trade, particularly in the last six months, resulting in new record heights for each in this year.

During the first part of 1960, international trade and economic activity had increased among the industrial nations, but the rate of growth lessened in the latter half. Then in 1961 there was an added intensification of competition in the international trade field, surpluses in raw materials and in many manufactured goods taking the place of former scarcities. Economic activity in the United States reached a low point in February and then showed a steady advance, except for a pause in September. Output and demand rose in Britain during the first six months of 1961 but tended to level off in the second half. The volume of output in Western Europe and Japan increased but the rate of expansion was somewhat slower. The value of commodities traded by leading countries in 1961 remained high, but purchasers could afford to be more selective than in previous years. Nevertheless, Canadian exports exceeded those in any preceding year, although concentrated more in shipments to foreign rather than Commonwealth countries.



The direction of Canadian foreign trade in 1961 varied somewhat, with lesser shares of exports going to traditional markets. The United States was the destination of 54.4 p.c. of total exports as compared to 56.3 p.c. in 1960. Britain took 15.6 p.c. as against 17.1 p.c.; the remainder of the Commonwealth 5.5 p.c. versus 6.2 p.c.; and other countries absorbed 24.5 p.c. as compared to 20.4 p.c. in 1960. In the last group, the proportion destined to Western European countries remained constant but the Asian share increased considerably and Latin America's share increased moderately. Imports showed only minor fractional variations from the shares supplied in the preceding year. In 1961, the United States was the source of 67.0 p.c. (67.2 p.c. in 1960), Britain 10.7 p.c. (10.8 p.c.), the remainder of the Commonwealth 5.0 p.c. (5.1 p.c.) and other countries 17.3 p.c. (16.9 p.c.); the latter included a small increase in imports from Western Europe.

The importance of foreign trade to the Canadian economy is reflected in the fact that exports of goods and services have been close to 20 p.c. of gross national expenditure in recent years while imports of goods and services have been slightly more. Among the major trading nations of the world, Canada in 1961 ranked fifth in the total value of commodities exchanged preceded by the United States, the Federal Republic of Germany, Britain and France. In recent years, including 1959, Canada ranked fourth but increased economic activity in France in the past two years put the value of that country's total trade above Canada's. Also, for the first time since World War II, West Germany's total trade exceeded that of Britain. On a per capita basis, Canada's position has declined considerably, dropping from second place in 1957 and 1958 to third in 1959 and to eighth in 1960 and 1961. According to preliminary returns, Canada is preceded by Switzerland, Trinidad and Tobago, Belgium and Luxembourg, the Netherlands, Sweden, Denmark and Norway, with the possibility that New Zealand may also be higher. Figures based on available statistics are recorded in Table 2, countries being ranked in order of their total trade in 1961.

2.—World Trade, by Leading Countries, 1960 and 1961

SOURCES: International Monetary Fund, *International Financial Statistics*, June 1962; and United Nations Statistical Office, *Population and Vital Statistics Report*, Series A, Vol. XIV, No. 2.

Country	1960			1961			Popula- tion 1961 ¹	Trade per Capita	
	Exports f.o.b.	Imports c.i.f.	Total Trade	Exports f.o.b.	Imports c.i.f.	Total Trade		1960	1961
	U.S.\$ '000,000	U.S.\$ '000,000	U.S.\$ '000,000	U.S.\$ '000,000	U.S.\$ '000,000	U.S.\$ '000,000	'000	U.S.\$	U.S.\$
United States.....	20,526	16,051	36,577	20,912	16,115	37,027	184,735	200 ²	200 ²
Germany, Federal Republic.....	11,418	10,107	21,525	12,690	10,948	23,638	56,667	387	417
Britain.....	10,352	12,765	23,117	10,754	12,318	23,072	52,825	440	437
France.....	6,864	6,281	13,145	7,222	6,679	13,901	46,241	289	301
Canada.....	5,826	6,121	11,950	6,107	6,208	12,315	18,238³	669	675
Japan.....	4,055	4,491	8,546	4,236	5,810	10,046	94,420	92	106
Italy.....	3,650	4,721	8,371	4,188	5,222	9,410	49,773	170	189
Netherlands.....	4,028	4,631	8,559	4,288	5,087	9,375	11,720	746	800
Belgium and Luxembourg...	3,775	3,957	7,732	3,924	4,219	8,143	9,493	817	858
Sweden.....	2,567	2,876	5,443	2,738	2,921	5,659	7,542	728	750
Switzerland.....	1,880	2,243	4,123	2,043	2,707	4,750	5,500	778	864
Australia.....	1,962	2,715	4,677	2,325	2,395	4,720	10,508	455	449
World Totals⁴.....	113,400	118,939	232,339	118,500	124,000	212,500	2,045,000⁵	117	119

¹ Latest official estimate.

² Includes military aid extended to other countries.

³ 1961 Census.

⁴ Excludes China, Union of Soviet Socialist Republics and the communist countries of Eastern Europe (except Yugoslavia).

⁵ Estimated from trend for previous years.

International Background.—Since a large part of the national income and major portions of the revenues of many important industries are derived from foreign trade, developments in principal world markets are of direct interest to Canada's economy. On the international scene, the rising importance of the European Economic Community (EEC) or Common Market has been underlined by the July 1961 decision of Britain to apply for membership. This group, set up by the Treaty of Rome, came into existence on Jan. 1, 1958, and is composed of France, West Germany, Italy, the Netherlands, Belgium and Luxembourg. By January 1962, these countries had made successive reductions totalling 40 p.c. in their tariffs against each other, except for some rates on agricultural produce, and had abolished most import licences and quotas between members. Effective July 1962, a further decrease of 10 p.c. in industrial tariffs has been agreed to, and also a 5-p.c. reduction on a number of agricultural products, bringing total cuts thereon to 35 p.c. These latest reductions mean that the member countries are two and one-half years ahead of the program originally laid down. Agreement on a common farm policy was also reached in early 1962, and negotiations for Britain's entry into the EEC was continuing at mid-year.

A second European group, the European Free Trade Association (EFTA), was brought into being by the Stockholm Convention of Nov. 20, 1959, and is composed of Britain, Norway, Sweden, Denmark, Austria, Switzerland and Portugal. The participating countries have reduced duties on most industrial goods produced and sold among themselves by 40 p.c. as from Mar. 1, 1962, by all but Austria and Norway, which two have agreed to follow not later than Sept. 1, 1962. Each nation of this group retains its own tariff against non-members. Should Britain join the EEC, mutual arrangements between EFTA countries would, as a consequence, be reviewed.

Canada and the United States joined eighteen European countries to form the Organization for Economic Co-operation and Development (OECD) which was set up in Paris Dec. 14, 1960. The main objectives of the OECD are to encourage economic and financial growth among member countries, to contribute to the sound expansion of the underdeveloped nations, and to work for an increase in world trade on a multilateral and non-discriminatory basis.

Most of the main world trading nations, Canada included, are associated in the General Agreement of Tariffs and Trade (GATT) and continued their efforts in 1961 toward the reduction of duties and the removal of import restrictions. New techniques for wider tariff reductions, better access to world markets for agricultural commodities and further aid for exports from under-developed countries were studied.

In Latin America, the seven original signers of the Latin American Free Trade Association (LAFTA)—Argentina, Brazil, Chile, Mexico, Paraguay, Peru and Uruguay—have ratified the Treaty of Montevideo, which thus became effective in July 1961. Colombia and Ecuador have subsequently become members and the treaty is open to adherence by all other Latin American countries. The aim of the Association is to remove customs duties and other trade restrictions at a minimum reduction rate of 8 p.c. annually, reaching a duty-free status in twelve years. In Central America, further steps were taken in 1961 toward economic integration and the establishment of a common market among Central American countries.

The future impact of these regional groups on Canadian trade is difficult to judge, particularly if the main members of EFTA should agree to participate in the European Common Market. At present, a large proportion of Canadian exports to the EEC countries enter those markets duty free, but if and when the proposed common external rates are implemented almost half of these products will be dutiable. Under current conditions, the bulk of Canadian exports to Britain are imported without payment of duty and almost half come in under a Commonwealth preference. If Britain joins the European Economic Community, the competitive position of Canadian merchandise on the British market may well undergo significant changes. Other re-alignments in world trading arrangements may emerge; for instance, there is a distinct possibility of major change in United States trading policies which could lead to a reduction of tariff barriers of consequence to Canadian trade. Continued entry into world markets is of vital importance to the Canadian economy.

Canadian Trade in 1961.—*Exports.*—The principal components of Canadian export trade are drawn from the forests, farms and mines of the nation. Shipments of wood, wood products and paper, agricultural and vegetable products, and non-ferrous metals and products together account for over two-thirds of the total exports. Newsprint remained the leading commodity, shipments being valued at \$761,300,000 for 1961. Wheat exports, at \$661,800,000, were 61.2 p.c. greater than in 1959, the main amounts going to Britain, West Germany, Japan and Communist China. Lumber shipments, which had slowed down at the beginning of the year, picked up during the last half to rise to \$354,900,000 or 2.5 p.c. above 1960 figures. Wood pulp followed, at \$346,700,000, a 6.6-p.c. advance. Nickel, at \$338,500,000, the fifth export in value, was 34.8 p.c. above shipments in the preceding year.

Exports of aluminum, copper and uranium all showed decreases in 1961 as compared to 1960 shipments. Aluminum, at \$250,700,000, was 6.9 p.c. less; copper, at \$201,800,000, was 9.9 p.c. below, and shipments of uranium and concentrates, as a result of the deferral of contracts, were down 26.9 p.c., being valued at \$192,700,000. Crude petroleum exports rose by almost two-thirds to reach \$154,300,000 and fish products at \$141,100,000 were 4.8 p.c. above the 1960 figure. A decrease of 12.7 p.c. was noted in 1961 iron ore shipments, which declined to \$135,800,000; asbestos, at \$131,300,000, rose 9.3 p.c.; and plastics and synthetic rubber accounted for \$103,800,000, somewhat lower than in the previous year. Sales of non-farm machinery rose by 44.2 p.c. to \$96,700,000. Farm machinery, including tractors, at \$79,800,000, fell by 6.6 p.c. although sales began to pick up toward the end of the year.

Domestic exports to the United States in 1961 advanced 6.0 p.c. and were valued at \$3,109,109,000 as compared with \$2,932,171,000 during the previous year. Shipments fell off considerably in the first quarter but rallied in the second, gained substantially in the third and advanced 23.1 p.c. in the fourth quarter. The chief gains were in nickel and crude petroleum while aircraft and natural gas added substantial amounts. Shipments of uranium and concentrates were off by more than one-quarter and copper exports were

over one-third less. Newsprint was the chief Canadian export to the United States but shipments were fractionally less than in 1960. Wood pulp and lumber were next, sales of the former advancing by 5.0 p.c. and of the latter by 2.4 p.c. Uranium and crude petroleum followed, a decline in the first counterbalancing an increase in the second. Nickel was sixth and fish and fishery products, iron ore, alcoholic beverages and farm machinery completed the list of the ten most important exports. Shipments of iron ore, which had declined severely in the first six months, rallied in the third quarter and nearly doubled in the last quarter; however, for the year they were 9.4 p.c. below the 1960 total.

Domestic exports to Britain at \$908,837,000 were 0.7 p.c. less than the 1960 total of \$915,290,000, a large decline in the second quarter and a fractional one in the third outweighing gains in the first and fourth quarters. There were considerable advances in the sales of nickel and precious metals and wheat and tobacco also increased. However, considerably lower quantities of aluminum, iron ore, uranium, zinc, and grains were forwarded during 1961. Wheat remained the leading product, followed by nickel, aluminum, copper and newsprint; lumber, wood pulp, precious metals, tobacco and seeds were next in importance.

Exports to Commonwealth and preferential countries, other than Britain, totalled \$328,900,000 or 1.5 p.c. less than in 1960. Australia was the main market, 1961 shipments being valued at \$78,628,000 or approximately one-fifth below the previous year. Sales of lumber, wood pulp and newsprint declined, as did those of engines and boilers and aluminum, although sales of machinery increased. India came next, exports increasing by 16.5 p.c. to \$42,885,000, composed mainly of wheat, wood pulp, engines, aluminum, zinc and copper. Shipments to South Africa decreased by 28.2 p.c., totalling \$37,819,000 in 1961, but exports to New Zealand rose by 30.5 p.c. to \$31,125,000. There were also larger wheat and wood pulp shipments to Pakistan, aircraft and more wheat flour to Ghana, and more plastics and synthetic rubber to Hong Kong.

Domestic exports to all other countries aggregated \$1,408,700,000, an increase of 29.3 p.c. over the 1960 figure of \$1,089,700,000. Of these exports, \$640,300,000 in 1961 were consigned to Western Europe, a rise of 9.7 p.c. over the previous year's total of \$583,900,000. West Germany was the principal destination, that country purchasing \$212,753,000 of Canadian produce and thus accounting for almost one-third of Canada's trade with Western Europe in 1961. Belgium and Luxembourg, France, Norway and Italy followed. There was a large gain in shipments to Germany and considerable advances in exports to Belgium and Norway, while those to Italy and France declined slightly from 1960 figures. The European Common Market countries purchased \$488,965,000, an increase of 11.5 p.c. over the 1960 total of \$438,582,000. Sales to Eastern Europe rose to \$97,500,000, chiefly attributable to substantial shipments of wheat.

Also contributing to the rise in shipments to other foreign countries were exports to Asia which increased by over three-quarters to \$384,600,000, of which those to Japan, at \$231,574,000 and to Communist China at \$125,448,000, were the most important. Trade with Japan, Canada's third customer, rose by 29.5 p.c. and was spread over many items, but consisted chiefly of wheat, lumber and basic industrial materials. Shipments to Communist China were mainly wheat and barley.

Exports to Latin America increased by nearly one-quarter, those to South America being valued at \$140,500,000 and to Central America and the Antilles at \$104,900,000. Mexico, Venezuela, Cuba, Argentina and Brazil were the main markets in 1961 and the chief gains were in shipments to the last three. Exports to Middle East countries also advanced, rising 11.6 p.c. to \$25,900,000 while exports to other African countries increased slightly to \$11,400,000.

Imports.—For many years, iron and its products have accounted for over one-third of total imports and non-farm machinery and parts have headed the list of principal commodities. Automobile parts, crude and partly refined petroleum, electrical apparatus, passenger cars, engines and boilers, rolling-mill products (iron and steel), tractors and

parts, aircraft and parts, and farm implements and machinery have followed, the order of importance shifting slightly from year to year. In 1961, each of these products exceeded \$95,000,000 in value.

Most of the leading import commodities showed increases in 1961 when compared with arrivals in the preceding year. Non-farm machinery at \$603,100,000, by far the most valuable import, was valued at 4.0 p.c. above 1960. Automobile parts, at \$304,500,000, which had fallen off at the beginning of the year, advanced sharply in the last part of the year and were 2.7 p.c. above those in the preceding year. Crude petroleum, at \$291,200,000, rose 4.0 p.c. and electrical apparatus *n.o.p.*, at \$265,300,000, advanced 1.8 p.c. Arrivals of aircraft and parts valued at \$217,000,000 were nearly double those in the preceding year, and engines and boilers, including aircraft engines, also advanced considerably. Passenger cars declined considerably as did rolling-mill products. Cotton fabric imports were well maintained and paper and paperboard showed a substantial increase.

The United States supplied the greatest proportion of foreign goods brought into Canada, imports from that country totalling \$3,863,968,000 in 1961, an increase of 4.8 p.c. over the 1960 total. There was a considerable decline in the first quarter and a small drop in the second quarter, but imports rallied in the third and rose quite sharply in the final three months of the year. The leading import from the United States was non-farm machinery and parts, arrivals of which totalled \$512,400,000, a 2.2-p.c. increase over 1960; advances in the last half of the year made up for the sizable declines in the first two quarters. Automobile parts, at \$292,000,000, were in second place, rising by almost one-quarter in the July-December period and gaining 2.3 p.c. over the 1960 total. Third was farm implements and machinery, at \$209,900,000, fractionally below the total for the preceding year. These were followed by electrical apparatus at \$199,800,000, a 4.1-p.c. gain over the year before. Aircraft and parts were fifth at \$168,600,000, gaining by almost two-thirds over 1960, but this item included a large element of military aircraft obtained under special arrangements as well as some purchases of civilian aircraft. Engines and boilers, chiefly aircraft engines, amounted to \$114,300,000, a 10.2-p.c. rise over arrivals in 1960. Fruits, at \$115,900,000, increased by 5.3 p.c.; books and printed matter, at \$96,600,000, gained 10.4 p.c.; and plastics and products, at \$95,400,000, rose 7.9 p.c. For those remaining commodities, imports of which were over \$50,000,000, decreases were noted in arrivals of rolling-mill products, coal, automobiles, cotton products and vegetables, while paper and products and scientific and educational equipment advanced.

Imports from Britain, except for a fractional drop in the first quarter, showed a rising trend throughout 1961. Compared with the similar period of 1960, arrivals advanced 2.2 p.c. in the second quarter of 1961, 8.5 p.c. in the third and 10.1 p.c. in the fourth quarter, giving a cumulative increase of 5.0 p.c. for the year. Among commodities, a striking advance was noticeable in engines and boilers, which increased by 89.0 p.c. to occupy the first place at \$65,400,000, mainly owing to aircraft engines. Imports of British automobiles, however, fell to \$63,800,000, a decline of 41.0 p.c. from the 1960 total of \$108,200,000. Aircraft and parts were nearly three and one-half times as great as in the preceding year, rising to \$47,600,000 and constituting aircraft mainly for commercial use. Non-farm machinery rose 14.3 p.c. to \$47,200,000 while electrical apparatus declined 11.5 p.c. to \$36,900,000 and wool products dropped 7.4 p.c. to \$33,600,000 for the year despite a recovery in the last quarter. Considerable gains were made in imports of British farm implements and machinery, raw wool, clay and products, automobile parts, alcoholic beverages and books, and lesser advances in sugar and products of leather. Declines were registered in arrivals of precious metals, mainly platinum, during the last six months; in apparel, rolling-mill products and pipes and tubing, despite rallies in the fourth quarter; and in wire and chain and cotton products.

Imports from other Commonwealth countries and from the Republics of Ireland and South Africa totalled \$294,500,000 in 1961, a 4.7-p.c. rise over the previous year's figure of \$281,200,000. Arrivals increased considerably in the first and third quarters, only fractionally in the second, and by 4.7 p.c. in the final three-month period. Jamaica was

the leader in this group, supplying \$39,085,000 worth of merchandise, followed by Australia at \$36,685,000, and India at \$33,465,000. Imports from Jamaica were chiefly bauxite and sugar, from Australia principally sugar, meats and wool, while India sent mainly jute, tea, nuts, spices and cotton fabrics. Malaya and Singapore, at \$23,597,000, forwarded chiefly rubber, palm oil and tin; British Guiana, at \$23,281,000, sent bauxite and sugar; and Kuwait, at \$20,225,000, almost entirely petroleum. Ghana forwarded more cocoa but less was imported from Nigeria, and Kenya and Uganda increased their shipments of coffee; Ceylon supplied less tea and rubber than in 1960 and Trinidad less petroleum.

Imports from Western Europe advanced throughout the year, particularly in the fourth quarter when they rose by more than one-fourth. The total for 1961 reached \$411,700,000, an increase of 11.6 p.c.; the bulk of the trade was supplied by the Federal Republic of Germany, at \$136,530,000; France, at \$54,280,000; Italy, at \$49,140,000; Belgium and Luxembourg, at \$44,780,000; and the Netherlands, at \$33,493,000. Arrivals from each of these countries showed gains over 1960 totals, particularly Italy at 14.7 p.c., but averaged around 7 p.c. There were also appreciable increases in imports from Switzerland and Sweden. Germany supplied larger amounts of rolling-mill products, non-farm machinery and automobiles. France sent more machinery but fewer cars. Italy forwarded more machinery and Belgium more rolling-mill products, while the Netherlands increased its shipments of electrical apparatus. More machinery came from Sweden and Switzerland.

South American countries provided \$282,300,000 worth of goods, an increase of 9.6 p.c. over 1960. The largest single item was crude petroleum from Venezuela, at \$192,200,000, which, together with \$23,500,000 of petroleum products, made Venezuela the third largest source of imports, exceeded only by the United States and Britain. Brazil and Colombia increased the value of their coffee sales to Canada. Imports from the non-Commonwealth countries of Central America and the Antilles fell by 3.7 p.c. to \$81,200,000. The main supplier was the Netherlands Antilles which accounted for \$31,137,000, practically all being petroleum products. Mexico, at \$18,193,000, was next, although this total represented a drop of 13.4 p.c. from 1960 imports because of lower shipments of raw cotton and coffee. Larger supplies of bananas were brought into Canada from Honduras and Panama, Costa Rica sent the same amount as in 1960 and Ecuador's banana shipments were down nearly 30 p.c. Imports from Cuba declined substantially, arrivals of sugar, which made up half the value, dropping by almost 40 p.c.

Imports from Asian countries outside the Commonwealth rose 2.6 p.c. to \$124,200,000 in 1961, Japan at \$116,607,000 supplying the main proportion. Japanese goods advanced 5.6 p.c. in value and covered a wide range of commodities; electrical apparatus increased but rolling-mill products and machinery declined. From the Middle East, imports decreased 6.1 p.c., mainly because of the drop in petroleum from Iran, although more crude was brought in from Saudi Arabia. Imports from Eastern Europe increased 28.3 p.c. to \$17,700,000, of which almost half were from Czechoslovakia and the remainder from Poland and the U.S.S.R. There were also larger imports, totalling \$8,300,000, from non-Commonwealth African countries, bauxite from Guinea being the main item.

Leading Trade Partners.—Following the United States and Britain, Japan and the Federal Republic of Germany, each purchasing over \$200,000,000, were the third and fourth most important markets for Canadian goods in 1961 and in the preceding year. As a result of the large wheat and barley sales to Communist China in 1961 that country rose to fifth position among Canada's purchasers, exports being valued at over \$125,000,000. Next in line were Australia, Belgium and Luxembourg, France, Norway, Italy and the Netherlands, all buying between \$60,000,000 and \$80,000,000. Considerable quantities of Canadian exports also went to India, Poland, Mexico, the Republic of South Africa, Venezuela, New Zealand, Cuba, Argentina and Brazil.

For imports, after the United States and Britain, Venezuela, the Federal Republic of Germany and Japan were the principal sources of supply. Arrivals from Venezuela amounted to over \$200,000,000, while those from West Germany and Japan were each

above \$100,000,000. Following in importance, but considerably less in value, were imports from France, Italy, Belgium and Luxembourg, Saudi Arabia, Jamaica, Australia, the Netherlands, India, and the Netherlands Antilles. Details covering export and import trade with leading countries are given in Table 4, p. 953.

PART II.—FOREIGN TRADE STATISTICS*

Section 1.—Explanatory Notes on Canadian Trade Statistics

Sources.—Canadian foreign trade statistics are compiled from information recorded on customs documents received in the Dominion Bureau of Statistics from the various customs ports in Canada (except for exports of electric energy, which are based on data received from the National Energy Board). Record is kept of value and, whenever possible, of quantity. In considering these trade figures, it should be noted that the statistics do not necessarily reflect the financial transactions relating to the movement of goods since the method and time of payment are affected by many factors.

Coverage.—"Domestic exports" or "exports of Canadian produce" include exports of goods wholly produced in Canada together with exports of previously imported goods that have been changed in form by further processing in Canada. "Re-exports" or "exports of foreign produce" include previously imported goods that are exported from Canada in the same form as when imported.

"Imports" or "imports entered for consumption" include all goods that enter Canada and are cleared through customs for domestic sale or use, i.e., imports on which all duties are paid and which have passed from customs control into the possession of the importer. Goods re-exported without being cleared for domestic consumption are not included. It should be noted that the fact that imports have been "entered for consumption" does not necessarily imply that the goods will all be consumed in Canada but only that consumption can take place without further customs formalities.

The most important exclusions from export totals are: gold, goods shipped to Canadian Armed Forces or diplomats stationed abroad, goods financed under the Defence Appropriation Act and shipped to other NATO countries, temporary exports for exhibition or competition, fuel and stores sold to foreign vessels and aircraft in Canada, settlers' effects, private donations and gifts, and identifiable tourist purchases.

The most important exclusions from import totals are: gold, goods for use of the United States Armed Forces stationed at treaty bases in Canada, Canadian-owned military equipment returned to Canada, ships imported for use in foreign trade and ships of British construction and registry imported for use in the coasting trade, temporary imports for exhibition or competition, fuel and stores purchased by Canadian vessels and aircraft abroad, settlers' effects, private donations and gifts, tourist purchases exempt from duty, and goods imported for foreign armed forces or diplomats stationed in Canada.

From Jan. 1, 1960, a new category was established in both export and import statistics entitled "Special Transactions—Non-Trade". This category includes certain commodity movements which either have no international financial implications or, for various reasons, are better considered separately from merchandise trade in economic analysis. The value of transactions of these types is now excluded entirely from published totals of Canadian merchandise trade, and do not appear in this volume, but statistics for the classes of this category are contained in the regular monthly export and import reports. As a result of these changes, the export and import totals have substantially the same coverage and provide a much truer picture of the merchandise trade component of the

* Based on statistics taken from reports published by the External Trade Division, Dominion Bureau of Statistics.

balance of payments. As the deductions from import totals have considerably exceeded those from export totals, the effect of these changes has been to reduce significantly the size of the import balances published in the 1960 and previous editions of the Year Book.

Valuation.—Exports are normally valued f.o.b. point of consignment from Canada, i.e., at the actual amount received or to be received by the exporter in Canada dollars, exclusive of inland freight, ocean freight, insurance, handling and other charges.

Imports are normally valued f.o.b. point of consignment to Canada, i.e., excluding inland freight, ocean freight, insurance, handling and export or import duties. The statistical value of imports is usually the value as determined for customs duty purposes, which is basically the fair market value at which equivalent goods would be sold for home use in the country from which the imports were received; the customs value of imports usually corresponds to the invoice value of the goods. From Jan. 1, 1959, the statistical value of imports on which dumping duty has been collected is considered to be the value of the goods as declared by the importer, i.e., the value for duty less the amount of the dumping duty. This change was introduced to conform with the principle that trade statistics should show, whenever possible, the actual amount paid for imports; previously the statistical value of such imports was considered to be the value for duty.

Country Classification.—Trade is credited to countries on the basis of consignment. For exports from Canada, the country of consignment is that country to which goods are, at the time of export, intended to pass without interruption of transit except in the course of transfer from one means of conveyance to another. For imports into Canada, the country of consignment is the country from which the goods came without interruption of transit except in the course of transfer from one means of conveyance to another. This is not necessarily the country of actual origin, since goods produced in one country may be imported by a firm in another country and re-sold to Canada; in such cases the second country is the country of consignment to which the goods are credited. There is one exception to this rule; an attempt is made to classify by country of origin goods produced in South America, Central America, Bermuda and the Antilles and consigned to Canada from the United States. The effect of this procedure, in force since 1946, is to reduce slightly the imports credited to the United States and to increase those credited to South and Central American countries.

The country sub-totals, which formerly related to Commonwealth countries only, now include trade with other countries entitled to Preferential rates of duty (the Republic of Ireland and the Republic of South Africa). These totals are now described as "Commonwealth and Preferential".

Discrepancies in Trade Statistics between Canada and Other Countries.—Canada's statistics of exports are rarely in exact agreement with the import statistics of its customers and parallel differences occur with Canadian imports. Major factors contributing to these discrepancies include:—

- (1) Differences in the system of valuation used by Canada and those of other countries, especially with respect to the treatment of transportation charges.
- (2) Differences in the statistical treatment of special categories of trade, such as armaments and military supplies, government-financed gift or mutual aid shipments, postal and express shipments, or warehouse trade.
- (3) Differing definitions of territorial areas.
- (4) Differing systems of geographical classification of trade, notably the consignment system used by Canada and the actual origin or ultimate destination system in use by some other countries.
- (5) Differences in the time at which trade is recorded in the statistics of partner countries caused by the time required for goods to move from one country to another.

Section 2.—Total Foreign Trade

In considering the figures in Sections 2 to 6, reference should be made to the explanatory notes on trade in Section 1. Exports and imports of gold are excluded from all tables.

1.—Value of Total Foreign Trade of Canada (excluding Gold), 1947-61

NOTE.—Figures have been revised to cover the adjustment for "Special Transactions—Non-Trade", see p. 949.

Year	Exports			Imports			Balance of Trade: Excess of Exports (+) Imports (—)
	Domestic	Re-exports	Total	Dutiable	Free	Total	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1947.....	2,752,799	36,829	2,789,628	1,562,690	979,969	2,542,659	+ 246,968
1948.....	3,052,090	34,441	3,086,531	1,382,203	1,236,074	2,618,276	+ 468,254
1949.....	2,974,969	29,428	3,004,397	1,444,124	1,269,902	2,714,025	+ 290,372
1950.....	3,104,016	38,620	3,142,636	1,621,534	1,503,697	3,125,231	+ 17,405
1951.....	3,897,082	48,847	3,945,929	2,174,304	1,830,635	4,004,939	— 59,011
1952.....	4,282,361	54,814	4,337,175	2,162,882	1,753,535	3,916,418	+ 420,757
1953.....	4,097,111	55,158	4,152,269	2,417,960	1,829,848	4,247,808	— 95,539
1954.....	3,860,217	65,604	3,925,821	2,311,568	1,655,833	3,967,401	— 41,580
1955.....	4,258,328	69,448	4,327,776	2,638,037	1,929,718	4,567,754	— 239,978
1956.....	4,760,442	73,335	4,833,777	3,292,516	2,254,435	5,546,951	— 713,175
1957.....	4,788,880	95,261	4,884,141	3,223,197	2,250,149	5,473,346	— 589,205
1958.....	4,791,436	102,907	4,894,343	2,952,707	2,097,785	5,050,492	— 156,150
1959.....	5,021,672	118,628	5,140,300	3,143,065	2,365,856	5,508,921	— 368,621
1960.....	5,255,575	131,217	5,386,792	3,048,583	2,434,112	5,482,695	— 95,903
1961.....	5,755,513	140,229	5,895,741	3,117,872	2,653,161	5,771,033	+ 124,709

Treatment of Gold in Trade Statistics.—The general use of gold as a money metal gives it peculiar attributes that distinguish it from other commodities in trade. In particular, international movements of gold are determined largely by monetary factors rather than by ordinary trade or commercial considerations. Gold is generally acceptable; it does not have to surmount tariff barriers and is normally assured a market at a fixed minimum price. Also, gold may be bought or sold internationally without any physical movements of the metal, such transactions being recognized by simply setting aside or 'ear-marking' the metal in the vaults of some central bank.

For these reasons movements of gold in a primary or semi-fabricated state are excluded from the totals of Canada's commodity trade. However, since gold is produced in Canada primarily as an export commodity, a series showing new gold production available for export is published as a supplement to the trade statistics. Because this series is calculated on a production basis, a division of the figures into transactions with individual countries is not possible.

2.—New Gold Production Available for Export, by Month, 1954-61

NOTE.—Since Mar. 21, 1956, mines not receiving aid under the Emergency Gold Mining Assistance Act have been allowed to sell their gold to private residents and non-residents, either for export or for safe-keeping in Canada. Such sales, commencing in April 1956, are included in the figures for new gold production available for export.

(Millions of dollars)

Month	1954	1955	1956	1957	1958	1959	1960	1961
January.....	11.5	11.5	12.5	13.6	14.7	11.7	14.5	14.1
February.....	10.2	14.7	12.7	12.4	17.7	16.1	15.0	14.2
March.....	12.8	12.2	12.4	11.7	11.1	9.8	14.3	12.8
April.....	13.8	10.9	12.3	10.7	10.7	14.1	9.4	13.3
May.....	13.7	15.0	13.4	15.1	12.9	12.9	12.4	15.2
June.....	15.6	13.3	12.8	5.0	14.7	13.8	13.3	13.9
July.....	13.6	11.9	10.8	12.7	13.6	11.4	11.7	12.7
August.....	13.3	13.1	14.0	3.4	11.4	11.1	14.4	14.8
September.....	11.9	12.2	12.1	9.9	12.6	10.3	15.7	13.1
October.....	12.3	11.7	12.1	16.0	13.9	9.4	12.3	11.2
November.....	12.3	15.0	12.0	16.1	11.4	12.6	11.7	16.3
December.....	13.7	13.4	10.1	17.1	12.4	15.1	16.8	10.7
Totals.....	151.7	151.9	147.2	143.7	157.1	148.3	161.5	162.3

Section 3.—Trade by Geographic Area

The tables in this Section provide information about Canada's total foreign trade by geographic region and by country.

3.—Trade of Canada with Commonwealth and Preferential Countries, and Other Countries, 1946-61

Item and Year	Britain		Other Commonwealth and Preferential Countries		United States ¹		Other Countries	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$'000		\$'000		\$'000		\$'000	
Domestic Exports								
1946.....	594,138	26.1	301,411	13.3	884,066	38.9	492,390	21.7
1947.....	746,718	27.1	405,485	14.8	1,030,101	37.4	570,495	20.7
1948.....	683,249	22.4	337,880	11.1	1,498,552	49.1	532,409	17.4
1949.....	702,074	23.6	309,214	10.4	1,604,768	50.6	458,913	15.4
1950.....	467,896	15.1	197,654	6.4	2,020,703	65.1	417,763	13.4
1951.....	630,124	16.2	260,889	6.7	2,296,235	58.9	709,834	18.2
1952.....	744,461	17.4	283,809	6.6	2,302,673	53.8	951,418	22.2
1953.....	662,785	16.2	244,745	6.0	2,413,318	58.9	776,263	18.9
1954.....	651,033	16.9	202,561	5.2	2,308,670	59.8	697,953	18.1
1955.....	767,642	18.0	248,624	5.9	2,547,636	59.8	694,426	16.3
1956.....	811,113	17.0	252,117	5.3	2,803,085	58.9	894,127	18.8
1957.....	720,898	15.1	240,016	5.0	2,846,646	59.4	981,320	20.5
1958.....	771,576	16.1	290,125	6.1	2,808,067	58.6	921,667	19.2
1959.....	785,802	15.7	281,462	5.6	3,083,151	61.4	871,257	17.3
1960.....	915,290	17.4	333,815	6.4	2,932,171	55.8	1,074,299	20.4
1961.....	908,837	15.8	328,854	5.7	3,109,109	54.0	1,408,713	24.5
Imports								
1946.....	137,423	7.5	135,601	7.4	1,387,386	75.3	180,857	9.8
1947.....	184,207	7.2	164,553	6.5	1,951,606	76.8	242,293	9.5
1948.....	293,535	11.2	203,932	7.8	1,798,507	68.7	322,302	12.3
1949.....	302,420	11.1	186,306	6.9	1,915,227	70.6	310,072	11.4
1950.....	400,811	12.8	241,124	7.7	2,089,531	66.9	393,765	12.6
1951.....	415,194	10.4	306,287	7.6	2,752,087	68.7	531,371	13.3
1952.....	351,541	9.0	184,345	4.7	2,887,628	73.7	492,904	12.6
1953.....	445,441	10.5	170,224	4.0	3,115,301	73.3	516,842	12.2
1954.....	382,229	9.6	181,884	4.6	2,871,279	72.4	532,010	13.4
1955.....	393,117	8.6	209,265	4.6	3,331,143	72.9	634,229	13.9
1956.....	476,371	8.6	220,808	4.0	4,031,394	72.7	818,378	14.7
1957.....	507,319	9.3	239,054	4.4	3,887,391	71.0	839,582	15.3
1958.....	518,505	10.3	210,016	4.2	3,460,147	68.5	861,824	17.0
1959.....	588,573	10.7	241,241	4.4	3,709,065	67.3	970,042	17.6
1960.....	588,932	10.8	281,167	5.1	3,686,625	67.2	925,971	16.9
1961.....	618,224	10.7	294,502	5.1	3,863,968	67.0	994,359	17.2

¹ Includes Alaska and Hawaii.

4.—Trade of Canada, by Leading Countries, 1959-61

Rank in—			Item and Country	1959	1960	1961
1959	1960	1961				
				\$'000	\$'000	\$'000
			Domestic Exports			
1	1	1	United States (incl. Alaska and Hawaii)	3,083,151	2,932,171	3,109,109
2	2	2	Britain	785,802	915,290	908,837
3	3	3	Japan	139,724	178,859	231,574
4	4	4	Germany, Federal Republic	129,345	165,597	212,753
1	31	5	China, Communist	1,720	8,737	125,448
7	5	6	Australia	53,929	98,862	78,628
6	7	7	Belgium and Luxembourg	56,127	69,131	76,121
12	6	8	France	43,157	72,907	71,923
5	10	9	Norway	62,308	61,595	69,744
13	8	10	Italy	31,717	68,393	67,688
8	9	11	Netherlands	53,849	62,554	60,480
9	13	12	India	53,654	36,814	42,885
19	22	13	Poland	15,631	16,665	41,164
14	12	14	Mexico	27,633	38,023	38,529
10	11	15	Republic of South Africa	51,243	52,655	37,819
11	14	16	Venezuela	45,833	35,345	34,978
24	16	17	New Zealand	13,306	23,858	31,125
20	25	18	Cuba	15,222	13,038	31,104
32	20	19	Argentina	7,002	19,364	30,893
23	19	20	Brazil	14,148	19,755	30,076
25	32	21	Union of Soviet Socialist Republics	12,638	8,233	24,276
15	15	22	Switzerland	25,728	26,404	22,422
38	36	23	Czechoslovakia	4,936	6,767	20,617
17	23	24	Colombia	17,668	16,590	19,525
16	21	25	Jamaica	18,538	18,056	19,077
26	26	26	Trinidad and Tobago	12,636	12,971	18,398
21	18	27	Sweden	24,879	20,908	17,654
22	24	28	Philippines	14,863	14,809	15,645
18	27	29	Pakistan	17,317	11,942	15,315
29	28	30	Puerto Rico	10,522	11,172	13,109
			Totals, 30 Leading Countries	4,834,227	5,037,462	5,516,915
			Grand Totals, Domestic Exports	5,021,672	5,255,575	5,755,513
			Imports			
1	1	1	United States (incl. Alaska and Hawaii)	3,709,065	3,686,625	3,893,968
2	2	2	Britain	588,573	588,932	618,225
3	3	3	Venezuela	204,582	195,189	216,640
4	4	4	Germany, Federal Republic	123,905	126,988	136,530
5	5	5	Japan	102,669	110,382	116,607
7	6	6	France	56,940	50,121	54,280
11	7	7	Italy	37,656	42,843	49,140
9	8	8	Belgium and Luxembourg	44,786	41,401	44,780
6	10	9	Saudi Arabia	70,725	37,402	41,393
13	9	10	Jamaica	31,012	37,688	39,085
10	11	11	Australia	41,080	35,508	36,685
15	13	12	Netherlands	29,154	31,456	33,493
14	15	13	India	29,221	29,352	33,465
8	12	14	Netherlands Antilles	47,120	32,521	31,137
17	17	15	Brazil	28,479	24,883	29,081
18	18	16	Switzerland	24,514	24,343	26,102
19	21	17	Sweden	18,077	20,409	24,201
16	16	18	Malaya and Singapore	28,644	28,120	23,597
20	22	19	British Guiana	18,033	18,921	23,281
26	14	20	Iran	11,948	30,740	21,622
1	19	21	Kuwait	2	22,303	20,225
12	20	22	Mexico	34,201	21,007	18,193
22	23	23	Ceylon	15,133	15,556	16,516
24	25	24	Trinidad and Tobago	12,731	14,512	14,480
23	24	25	Hong Kong	12,969	15,534	14,143
21	26	26	Colombia	15,827	12,784	13,023
32	27	27	Republic of South Africa	6,564	11,482	12,645
27	30	28	Denmark	9,227	9,962	11,650
29	29	29	New Zealand	8,594	10,099	10,546
42	41	30	Norway	4,063	4,248	8,965
			Totals, 30 Leading Countries	5,365,491	5,331,309	5,633,696
			Grand Totals, Imports	5,508,921	5,482,695	5,771,033

¹ Lower than 50th.² Included with Saudi Arabia prior to 1960.

5.—Value of Domestic Exports, by Geographic Region and Country, 1954-61

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe—								
Britain.....	651,033	767,642	811,113	720,898	771,576	785,802	915,290	908,837
Gibraltar.....	252	282	239	272	214	182	200	291
Ireland.....	8,794	12,757	10,106	8,379	8,690	8,156	7,706	11,588
Malta and Gozo.....	3,035	3,926	4,056	2,743	1,506	2,142	2,299	2,924
Austria.....	2,821	5,943	4,920	6,441	7,457	8,260	7,745	7,877
Belgium and Luxembourg.....	54,937	53,314	57,789	60,194	69,531	56,127	69,131	76,121
Denmark.....	2,832	3,109	3,467	3,487	4,859	5,449	4,978	4,813
Finland.....	457	1,707	1,931	909	2,312	2,739	4,355	6,085
France.....	33,440	42,134	52,710	57,300	44,688	43,157	72,907	71,923
Germany, Federal Republic.....	86,668	90,526	133,847	151,508	201,134	129,345	165,597	212,753
Greece.....	2,057	4,153	2,402	4,022	4,576	3,798	5,546	4,995
Iceland.....	669	504	284	268	310	279	243	219
Italy.....	23,650	27,423	37,559	62,685	29,718	31,717	68,393	67,688
Netherlands.....	39,517	47,500	54,371	69,553	74,721	53,849	62,554	60,480
Norway.....	43,764	46,931	67,609	55,491	55,849	62,308	61,595	69,744
Portugal.....	2,752	2,813	1,894	2,788	2,553	3,251	3,336	4,718
Spain.....	2,721	4,139	5,013	5,875	6,675	6,168	10,243	12,803
Sweden.....	3,476	7,587	7,793	11,964	10,866	14,879	20,906	17,654
Switzerland.....	26,678	25,493	33,294	24,894	29,243	25,728	26,404	22,422
Totals, Commonwealth and Preferential Countries.....	663,113	784,606	825,515	732,292	781,986	796,281	925,495	923,640
Totals, Other Countries.....	326,438	363,276	454,884	517,109	544,492	447,055	583,932	640,294
Totals, Western Europe..	989,551	1,147,882	1,280,399	1,249,401	1,326,478	1,243,336	1,509,428	1,563,935
Eastern Europe—								
Albania.....	—	—	—	1	1	—	1	5,845
Bulgaria.....	—	—	102	116	70	200	491	277
Czechoslovakia.....	287	1,044	24,540	1,401	1,342	4,937	6,787	20,617
Germany, Eastern.....	—	2,261	1,458	25	1	—	994	1,605
Hungary.....	30	164	1,907	289	384	1,115	931	564
Poland.....	548	3,989	17,903	16,632	560	15,631	16,665	41,164
Romania.....	74	396	123	429	1,171	1,157	1,326	1,037
Union of Soviet Socialist Republics.....	4,854	2,658	24,528	10,646	18,863	12,638	8,233	24,276
Yugoslavia.....	7,105	348	206	189	198	2,577	3,249	2,135
Totals, Eastern Europe..	12,897	10,860	70,766	29,727	22,587	38,255	38,658	97,519
Middle East—								
Bahrain.....	2	2	2	2	2	2	112	111
Cyprus.....	3	3	3	3	3	3	609	70
Kuwait.....	2	2	2	2	2	2	1,091	941
Qatar.....	2	2	2	2	2	2	55	72
British Middle East, <i>n.e.s.</i>	22	16	8	1	1	7	61	165
Ethiopia.....	91	55	101	117	77	72	220	120
Iran.....	755	634	782	1,700	1,648	2,242	2,499	4,457
Iraq.....	425	1,167	654	1,069	969	4,311	2,425	1,374
Israel.....	10,034	4,457	2,648	4,889	4,501	4,557	6,184	8,747
Jordan.....	23	11	35	56	73	72	131	308
Lebanon.....	862	1,178	1,162	924	2,073	3,182	3,443	2,484
Libya.....	832	73	95	180	156	382	333	151
Saudi Arabia.....	1,588	1,236	1,940	1,656	2,017	2,877	2,905	2,549
Somalia.....	1	1	6	6	—	193	2	12
Sudan.....	7	4	65	212	182	367	335	333
Syria.....	1,165	1,043	716	798	765	1,067	674	364
Turkey.....	7,082	630	822	450	1,400	693	2,014	1,943
United Arab Republic—Egypt.....	1,130	1,261	2,499	1,197	1,077	1,601	2,010	3,025
Totals, Commonwealth and Preferential Countries.....	22	16	8	1	1	7	1,927	1,360
Totals, Other Countries.....	23,995	11,750	11,525	13,254	14,938	21,617	23,176	25,865
Totals, Middle East.....	24,017	11,766	11,533	13,254	14,939	21,624	25,103	27,225

¹ Less than \$500.
prior to 1960.² Included with Saudi Arabia prior to 1960.³ Included with Malta and Gozo

5.—Value of Domestic Exports, by Geographic Region and Country, 1954-61—continued

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Africa—								
Ghana.....	2,303	1,451	1,479	1,244	1,272	3,784	3,879	7,798
Kenya.....	320	523	383	743	472	806	936	586
Mauritius and Dependencies.....	—	—	108	145	107	68	77	95
Nigeria.....	1,434	852	723	1,492	308	938	2,305	3,272
Republic of South Africa.....	39,789	55,920	64,565	48,322	49,960	51,243	52,655	37,819
Rhodesia and Nyasaland.....	3,913	4,282	4,640	4,925	3,894	2,851	4,088	3,396
Sierra Leone.....	356	598	614	490	501	725	641	810
Tanganyika.....	1	1	1	1	1	1	143	173
Uganda.....	1	1	1	1	1	1	86	66
British Africa, <i>n.e.s.</i>	71	109	99	36	15	57	200	156
Algeria.....	2	2	2	2	2	2	4,662	6,064
Angola.....	2	2	2	2	2	2	67	160
Congo.....	3,617	3,526	2,774	2,614	2,926	2,689	1,310	980
French Equatorial Africa.....	2	2	2	2	2	2	34	57
French West Africa.....	2	2	2	2	2	2	135	73
French Africa, <i>n.e.s.</i>	1,216	1,221	1,060	844	1,008	2,765	10	26
Gabon.....	2	2	2	2	2	2	2	19
Guinea.....	2	2	2	2	2	2	9	140
Ivory Coast.....	2	2	2	2	2	2	2	26
Liberia.....	4,066	2,454	1,781	1,551	652	217	644	501
Morocco.....	2,822	1,786	2,027	725	1,152	416	627	476
Mozambique.....	2,604	2,041	2,185	2,128	1,326	2,012	3,145	2,023
Portuguese Africa, <i>n.e.s.</i>	317	264	167	210	320	305	279	241
Spanish Africa.....	19	2	15	2	2	2	28	40
Tunisia.....	2	2	2	2	2	2	170	561
Totals, Commonwealth and Preferential Countries.....	48,185	63,734	72,610	57,397	56,529	60,473	65,010	54,172
Totals, Other Countries.....	14,661	11,294	10,008	8,086	7,386	8,406	11,121	11,385
Totals, Other Africa...	62,846	75,028	82,619	65,482	63,915	68,878	76,130	65,558
Other Asia—								
Ceylon.....	3,135	2,652	3,325	3,205	5,459	4,931	2,479	3,799
Hong Kong.....	8,228	7,237	7,005	7,563	6,028	11,192	21,665	19,604
India.....	17,486	24,573	25,614	28,902	78,994	53,654	37,199 ⁴	43,330 ⁴
Malaya and Singapore.....	2,975	3,405	3,889	3,288	3,223	3,258	4,660	5,696
Pakistan.....	8,761	6,109	10,376	11,308	15,311	17,317	11,942	15,315
British East Indies, <i>n.e.s.</i>	17	52	127	185	112	95	360	457
Afghanistan.....	55	19	14	87	24	67	159	55
Burma.....	211	479	285	239	944	817	806	1,405
Cambodia and Laos.....	2	2	2	2	2	2	148	114
China, Communist.....	70	1,016	2,427	1,390	7,809	1,720	8,737	125,448
Indonesia.....	1,305	931	1,201	1,590	1,665	1,760	2,110	2,463
Japan.....	96,401	90,817	127,804	139,082	104,853	139,724	178,859	231,574
Korea.....	2,005	6,977	2,594	6,970	3,682	6,000	3,916	2,067
Philippines.....	15,852	18,115	18,036	17,516	14,077	14,863	14,809	15,645
Portuguese Asia.....	434	174 ⁴	454 ⁴	461 ⁴	341 ⁴	358 ⁴	93	59
Taiwan (Republic of China).....	3,180	1,221	747	1,641	1,161	1,692	2,886	2,219
Thailand.....	1,766	2,336	1,933	2,041	1,288	1,937	2,710	2,921
Viet Nam.....	178	327	534	996	249	385	540	206
Totals, Commonwealth and Preferential Countries.....	40,601	44,028	50,335	54,452	109,127	90,447	78,305	88,200
Totals, Other Countries.....	121,066	122,413	156,030	172,011	136,095	169,324	215,774	384,177
Totals, Other Asia...	161,667	166,441	206,366	226,463	215,222	259,771	294,079	472,376
Oceania—								
Australia.....	45,625	58,291	47,582	48,662	52,562	53,929	98,862	78,628
Fiji.....	649	1,055	1,121	578	814	727	808	607
New Zealand.....	14,700	22,248	17,896	16,842	15,008	13,306	23,858	31,125
British Oceania, <i>n.e.s.</i>	103	84	118	113	98	65	324	191

¹ Included with Kenya prior to 1960.² Included with French Africa, *n.e.s.* prior to 1961.³ Includedwith Portuguese Africa, *n.e.s.* prior to 1960.⁴ Includes Damão, Diu and Goa formerly with PortugueseAsia prior to 1960. ⁵ Included with Viet Nam prior to 1960.

5.—Value of Domestic Exports, by Geographic Region and Country, 1954-61—concluded

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Oceania—concluded								
French and Netherlands Oceania.	386	475	479	386	271	171	313	303
United States Oceania.....	269	333	212	208	138	167	640	1,293
Totals, Commonwealth and Preferential Countries.....	61,078	81,678	66,717	66,195	68,483	68,027	123,852	110,551
Totals, Other Countries.....	654	808	691	594	409	338	953	1,596
Totals, Oceania.....	61,733	82,486	67,408	66,789	68,892	68,365	124,805	112,147
South America—								
British Guiana.....	4,056	2,908	4,298	4,969	4,014	4,392	7,428	5,272
Falkland Islands.....	2	274	11	3	53	216	169	24
Argentina.....	6,681	6,794	6,130	14,158	6,428	7,002	19,364	30,893
Bolivia.....	1,268	1,065	1,480	934	414	324	323	353
Brazil.....	45,043	11,377	12,945	25,686	21,088	14,148	19,755	30,076
Chile.....	3,126	3,804	4,394	4,342	4,566	6,226	6,575	8,225
Colombia.....	20,948	22,641	17,552	14,587	13,813	17,668	16,590	19,525
Ecuador.....	5,503	4,950	4,336	2,782	3,185	3,864	3,913	3,922
French Guiana.....	4	2	1	5	2	2	2	15
Paraguay.....	166	90	237	171	183	114	120	69
Peru.....	5,055	5,956	11,265	10,031	11,441	11,632	8,891	8,188
Surinam.....	910	971	1,025	829	853	696	883	1,224
Uruguay.....	2,775	2,341	2,752	3,777	938	1,656	2,423	3,039
Venezuela.....	30,884	30,672	34,203	39,661	43,480	45,833	35,345	34,978
Totals, Commonwealth and Preferential Countries.....	4,061	3,182	4,309	4,971	4,067	4,608	7,597	5,296
Totals, Other Countries.....	122,362	90,663	96,318	116,963	106,392	109,166	114,184	140,507
Totals, South America...	126,423	93,845	100,627	121,935	110,459	113,773	121,780	145,803
Central America and Antilles—								
Bahamas.....	2,224	2,086	2,218	2,487	2,541	3,083	3,357	3,798
Barbados.....	4,333	4,217	4,684	4,628	4,159	4,103	3,775	3,977
Bermuda.....	2,925	2,933	2,801	2,907	3,195	4,334	4,016	4,239
British Honduras.....	299	303	243	276	229	289	409	600
Jamaica.....	11,477	12,767	17,063	19,247	15,588	18,538	18,056	19,077
Leeward and Windward Islands..	3,915	4,130	4,270	4,297	4,248	4,437	4,720	4,828
Trinidad and Tobago.....	11,360	12,585	12,456	11,763	11,548	12,636	12,971	18,398
Costa Rica.....	2,827	3,572	2,731	2,360	3,879	2,633	2,983	2,931
Cuba.....	17,417	13,883	15,284	16,846	17,549	15,222	13,038	31,104
Dominican Republic.....	4,242	4,153	4,965	4,991	5,335	5,137	5,062	4,469
El Salvador.....	1,524	1,793	2,283	2,412	2,143	2,567	2,390	2,436
French West Indies.....	23	21	16	37	26	19	43	75
Guatemala.....	2,015	2,507	2,997	3,190	3,645	2,627	2,106	2,188
Haiti.....	3,234	2,406	2,888	2,191	2,079	1,319	1,529	1,543
Honduras.....	455	580	856	1,055	1,201	946	1,416	1,061
Mexico.....	27,307	37,087	39,303	42,477	31,429	27,633	38,023	38,529
Netherlands Antilles.....	1,769	1,434	1,332	1,312	1,583	1,193	1,131	1,239
Nicaragua.....	1,650	1,759	1,396	1,634	1,886	1,515	1,319	1,448
Panama.....	4,055	2,815	7,742	30,657	5,370	4,023	3,703	4,578
Puerto Rico.....	7,723	9,700	10,396	12,589	12,526	10,522	11,172	13,109
United States Virgin Islands.....	119	190	130	126	132	185	214	190
Totals, Commonwealth and Preferential Countries.....	36,533	39,021	43,735	45,605	41,507	47,421	47,304	54,917
Totals, Other Countries.....	74,359	81,902	92,329	121,779	87,786	75,540	84,127	104,900
Totals, Central America and Antilles.....	110,893	120,923	136,064	167,384	129,294	122,961	131,431	159,818
North America—								
Greenland.....	299	86	176	76	138	154	427	198
St. Pierre and Miquelon.....	1,221	1,373	1,399	1,722	1,444	1,403	1,563	1,825
United States ²	2,308,670	2,547,636	2,803,085	2,846,646	2,808,067	3,083,151	2,932,171	3,109,109
Totals, North America...	2,310,191	2,549,096	2,804,660	2,848,445	2,809,650	3,084,708	2,934,162	3,111,132
Grand Totals, Commonwealth and Preferential Countries...	853,593	1,016,265	1,063,230	969,914	1,061,701	1,067,263	1,249,490	1,238,136
Grand Totals, Other Countries	3,066,621	3,242,063	3,697,212	3,827,966	3,729,735	3,954,409	4,066,085	4,517,376
Grand Totals, All Countries...	3,860,217	4,258,328	4,760,442	4,788,889	4,791,436	5,021,672	5,255,575	5,755,513

¹ Less than \$500.² Includes Alaska and Hawaii.

6.—Value of Imports, by Geographic Region and Country, 1951-61

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe—								
Britain.....	382,229	393,117	476,371	507,320	518,505	588,573	588,932	618,224
Gibraltar.....	1	1	—	—	—	1	2	1
Ireland.....	1,125	324	371	1,122	1,313	2,001	2,098	3,806
Malta and Gozo.....	45	43	39	64	62	174	22	25
Austria.....	2,721	2,547	3,724	4,239	4,640	5,707	6,605	6,636
Belgium and Luxembourg.....	24,794	28,854	52,379	43,681	35,759	44,786	41,401	44,780
Denmark.....	3,258	4,075	5,858	7,939	7,401	9,227	9,962	11,650
Finland.....	679	343	500	402	475	875	1,033	1,215
France.....	21,331	24,364	31,719	34,987	40,007	56,940	50,121	54,280
Germany, Federal Republic.....	40,413	52,215	84,430	92,527	102,644	123,905	126,988	136,530
Greece.....	210	265	242	399	316	310	538	545
Iceland.....	54	5	2	40	7	40	15	707
Italy.....	14,781	18,307	24,644	32,536	32,150	37,656	42,843	49,140
Netherlands.....	18,528	19,073	21,524	21,690	26,905	29,154	31,456	33,493
Norway.....	1,879	2,290	3,698	2,984	3,106	4,063	4,248	8,965
Portugal.....	1,983	2,130	2,404	2,750	3,045	3,116	3,208	4,917
Spain.....	5,538	6,184	5,651	5,541	6,681	5,627	6,947	8,543
Sweden.....	8,973	11,996	17,135	15,339	13,039	18,077	20,409	24,221
Switzerland.....	18,808	18,965	21,925	24,053	26,491	24,514	24,343	26,102
Totals, Commonwealth and Preferential Countries.....	383,399	393,485	476,781	508,505	519,881	590,748	591,054	622,055
Totals, Other Countries.....	163,849	191,613	275,836	289,106	303,566	363,996	370,138	411,722
Totals, Western Europe..	547,248	585,098	752,617	797,611	823,446	954,744	961,191	1,033,777
Eastern Europe—								
Albania.....	—	—	—	—	—	—	1	—
Bulgaria.....	1	3	4	1	4	6	6	24
Czechoslovakia.....	1,787	2,861	5,649	5,013	4,908	6,440	6,654	8,405
Germany, Eastern.....	721	572	779	707	948	901	877	970
Hungary.....	202	116	189	168	701	237	338	393
Poland.....	372	579	2,159	1,050	1,131	1,643	1,871	3,194
Romania.....	1	—	2	1	4	35	84	261
Union of Soviet Socialist Re- publics.....	676	619	1,001	2,789	1,676	2,278	3,210	2,746
Yugoslavia.....	274	509	900	564	813	551	804	1,665
Totals, Eastern Europe..	4,034	5,259	10,683	10,292	10,185	12,090	13,844	17,659
Middle East—								
Bahrain.....	2	2	2	2	2	2	—	1
Cyprus.....	3	3	3	3	3	3	180	194
Kuwait.....	2	2	2	2	2	2	22,303	20,225
Qatar.....	73	47	73	51	62	400	8,434	8,724
British Middle East, <i>n.e.s.</i>	—	—	—	—	—	—	59	48
Ethiopia.....	97	88	120	61	18	44	43	4
Iran.....	1,385	2,061	1,056	535	915	11,948	30,740	21,622
Iraq.....	227	1,298	919	429	1,556	1,107	722	846
Israel.....	1,000	1,132	1,463	1,548	1,725	2,349	2,372	3,106
Jordan.....	—	2	1	4	—	1	1	3
Lebanon.....	17,413	17,915	19,590	6	12	4	33	23
Libya.....	—	—	—	1	1	—	1	1
Saudi Arabia.....	2,215	6,983	24,709	34,315	68,021	70,725	37,402	41,393
Somalia.....	—	—	—	—	—	1	—	—
Sudan.....	57	97	97	45	80	438	83	76
Syria.....	22	1,058	1,350	238	200	183	127	263
Turkey.....	693	740	686	823	491	886	855	859
United Arab Republic—Egypt... prior to 1960.	426	266	145	229	179	200	846	474
Totals, Commonwealth and Preferential Countries.....	73	47	73	51	62	400	30,975	29,192
Totals, Other Countries.....	23,536	31,639	50,137	38,322	73,198	87,887	73,224	68,668
Totals, Middle East.....	23,609	31,686	50,210	38,373	73,260	88,286	104,200	97,861

¹ Less than \$500.
prior to 1960.

² Included with Saudi Arabia prior to 1960.

³ Included with Malta and Gozo

6.—Value of Imports, by Geographic Region and Country, 1954-61—continued

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Africa—								
Ghana.....	1,982	3,773	4,062	5,989	2,122	4,103	3,127	4,691
Kenya.....	15,839	13,146	7,270	4,970	5,057	4,261	2,561	3,629
Mauritius and Dependencies.....	—	—	7,758	10,278	5,918	7,584	2,100	6,025
Nigeria.....	863	858	985	2,352	2,372	3,084	4,358	3,504
Republic of South Africa.....	5,789	6,152	8,321	6,777	7,914	6,564	11,482	12,645
Rhodesia and Nyasaland.....	1,141	469	715	1,080	1,373	966	981	1,311
Sierra Leone.....	7	8	18	9	2	1	5	8
Tanganyika.....	1	1	1	1	1	1	1,834	2,139
Uganda.....	1	1	1	1	1	1	1,277	2,325
British Africa, <i>n.e.s.</i>	—	—	—	2	2	2	5	52
Algeria.....	2	2	2	2	2	2	161	162
Angola.....	4	4	4	4	4	4	209	136
Congo.....	1,489	2,673	2,744	3,337	1,125	2,258	1,781	1,314
French Equatorial Africa.....	2	2	2	2	2	2	185	27
French West Africa.....	2	2	2	2	2	2	270	6
French Africa, <i>n.e.s.</i>	3,482	3,280	2,095	2,225	1,749	2,183	33	29
Gabon.....	2	2	2	2	2	2	2	659
Guinea.....	2	2	2	2	2	2	2,794	4,824
Ivory Coast.....	2	2	2	2	2	2	2	783
Liberia.....	135	214	440	7	147	39	8	144
Morocco.....	178	182	152	138	130	209	222	164
Mozambique.....	191	128	370	39	24	18	1	36
Portuguese Africa, <i>n.e.s.</i>	173	44	94	33	11	—	—	—
Spanish Africa.....	26	41	24	20	7	8	2	17
Tunisia.....	2	2	2	2	2	2	62	32
Totals, Commonwealth and Preferential Countries.....	25,621	24,405	29,130	31,456	24,759	26,563	27,729	36,330
Totals, Other Countries.....	5,674	6,562	5,920	5,799	3,195	4,715	5,728	8,333
Totals, Other Africa.....	31,295	30,967	35,050	37,254	27,954	31,278	33,456	44,664
Other Asia—								
Ceylon.....	12,526	15,573	16,540	14,910	12,863	15,133	15,556	16,516
Hong Kong.....	4,039	5,821	5,642	7,138	8,689	12,969	15,534	14,143
India.....	28,016	35,105	30,852	29,185	27,655	29,221	29,352	33,465
Malaya and Singapore.....	19,554	28,790	28,544	27,313	19,863	28,644	28,120	23,597
Pakistan.....	556	810	1,297	489	460	1,061	985	2,367
British East Indies, <i>n.e.s.</i>	172	71	122	120	129	390	261	297
Afghanistan.....	9	4	—	—	—	—	—	2
Burma.....	79	5	1	9	84	24	85	30
Cambodia and Laos.....	5	5	5	5	5	5	17	2
China, Communist.....	1,599	3,114	5,713	5,299	5,370	4,840	5,638	3,233
Indonesia.....	606	998	1,141	951	211	147	529	290
Japan.....	19,004	36,586	60,729	61,396	70,092	102,669	110,382	116,607
Korea.....	23	461	1	34	21	235	404	76
Philippines.....	3,999	2,027	2,451	3,957	2,177	1,440	1,966	1,517
Portuguese Asia.....	1	—	—	—	1	2	—	—
Taiwan (Republic of China).....	187	155	112	189	159	716	1,150	1,856
Thailand.....	777	1,100	1,062	609	643	649	842	582
Viet Nam.....	44	170	12	5	3	8	5	9
Totals, Commonwealth and Preferential Countries.....	64,863	86,170	82,997	79,155	69,659	87,418	89,807	90,384
Totals, Other Countries.....	26,328	44,620	71,223	72,448	78,762	110,728	121,020	124,202
Totals, Other Asia.....	91,191	130,790	154,220	151,603	148,422	198,146	210,827	214,586
Oceania—								
Australia.....	24,512	26,161	26,207	28,572	32,755	41,080	35,508	36,685
Fiji.....	5,813	5,016	6,267	7,216	5,727	4,764	6,481	2,824
New Zealand.....	7,275	12,282	12,265	11,707	11,540	8,594	10,099	10,546
British Oceania, <i>n.e.s.</i>	—	—	142	—	160	157	—	2

¹ Included with Kenya prior to 1960.

² Less than \$500.

³ Included with Portuguese Africa, *n.e.s.* prior to 1960.

⁴ Included with French Africa, *n.e.s.*

⁵ Included with Viet Nam prior to 1960.

6. —Value of Imports, by Geographic Region and Country, 1954-61—continued

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Oceania—concluded								
French and Netherlands Oceania.....	—	—	—	19	1	1	—	40
United States Oceania.....	—	—	1	—	—	1	21	55
Totals, Commonwealth and Preferential Countries.....	37,600	43,459	44,880	47,495	50,182	54,595	52,087	50,054
Totals, Other Countries.....	—	—	1	19	1	1	21	96
Totals, Oceania.....	37,600	43,459	44,880	47,514	50,182	54,597	52,109	50,150
South America—								
British Guiana.....	20,458	18,282	20,482	20,988	20,627	18,033	18,921	23,281
Falkland Islands.....	—	—	—	—	—	1	8	8
Argentina.....	2,716	4,380	4,525	4,679	5,357	3,380	3,611	3,399
Bolivia.....	267	15	87	139	132	166	443	883
Brazil.....	31,553	30,692	34,807	35,276	27,419	28,479	24,883	29,081
Chile.....	219	248	1,701	1,597	823	870	747	1,217
Colombia.....	24,797	22,214	23,037	18,179	16,574	15,827	12,784	13,023
Ecuador.....	3,761	5,187	4,496	4,427	4,962	7,623	11,018	7,682
French Guiana.....	—	—	—	—	1	—	—	—
Paraguay.....	520	237	142	278	347	746	760	874
Peru.....	2,250	835	2,754	2,768	2,326	3,978	3,037	4,233
Surinam.....	2,791	3,642	3,925	3,899	2,270	2,872	4,156	3,482
Uruguay.....	1,023	481	1,156	808	820	657	987	1,834
Venezuela.....	167,515	187,226	208,346	248,069	209,538	204,582	195,189	216,640
Totals, Commonwealth and Preferential Countries.....	20,458	18,282	20,482	20,988	20,627	18,034	18,929	23,289
Totals, Other Countries.....	237,413	255,158	284,975	320,119	270,568	269,180	257,615	282,349
Totals, South America...	257,871	273,439	305,458	341,106	291,194	287,213	276,544	305,638
Central America and Antilles—								
Bahamas.....	396	263	197	145	146	233	2,614	484
Barbados.....	5,327	8,221	4,610	7,602	3,735	4,709	2,417	5,103
Bermuda.....	204	114	118	116	276	1,291	701	224
British Honduras.....	124	157	137	182	136	92	91	750
Jamaica.....	15,235	15,516	24,572	40,133	27,491	31,012	37,688	39,085
Leeward and Windward Islands.....	1,248	2,453	2,191	2,387	1,761	1,989	1,496	1,294
Trinidad and Tobago.....	9,565	9,811	11,012	8,159	9,807	12,731	14,512	14,480
Costa Rica.....	7,746	5,927	3,890	8,602	7,127	4,810	4,345	4,227
Cuba.....	9,895	9,989	12,257	13,840	18,836	12,011	7,243	5,154
Dominican Republic.....	1,657	1,522	1,345	1,268	2,659	1,634	1,586	1,269
El Salvador.....	949	2,962	1,133	1,311	1,186	3,899	829	1,307
French West Indies.....	—	157	1	—	—	7	28	426
Guatemala.....	5,058	4,544	3,224	3,469	3,585	2,718	3,256	2,536
Haiti.....	1,569	1,593	1,679	1,491	1,073	1,053	982	810
Honduras.....	2,586	1,666	7,079	4,575	4,903	2,905	3,352	7,391
Mexico.....	13,943	28,734	41,592	20,987	31,888	34,201	21,007	18,193
Netherlands Antilles.....	20,549	30,699	38,103	39,259	39,453	47,120	32,521	31,137
Nicaragua.....	181	1,429	647	555	2,657	306	170	208
Panama.....	5,827	9,028	7,580	7,193	7,478	8,889	6,066	6,168
Puerto Rico.....	1,202	1,089	1,048	969	1,433	1,780	2,904	2,359
United States Virgin Islands.....	—	—	—	1	44	32	32	1
Totals, Commonwealth and Preferential Countries.....	32,099	36,535	42,836	58,723	43,352	52,057	59,518	61,421
Totals, Other Countries.....	71,161	99,339	119,578	103,520	122,323	121,365	84,322	81,187
Totals, Central America and Antilles.....	103,260	135,874	162,414	162,243	165,675	173,422	143,839	142,608

1 Less than \$500.

6.—Value of Imports, by Geographic Region and Country, 1954-61—concluded

Region and Country	1954	1955	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
North America—								
Greenland.....	—	1	1	1	8	53	1	102
St. Pierre and Miquelon.....	15	38	25	47	19	27	60	42
United States ²	2,871,279	3,331,143	4,031,394	3,887,391	3,460,147	3,709,065	3,686,625	3,863,968
Totals, North America.....	2,871,294	3,331,181	4,031,419	3,887,437	3,460,174	3,709,145	3,686,685	3,864,111
Grand Totals, Commonwealth and Preferential Countries....	564,113	602,382	697,179	746,373	723,521	829,814	870,099	912,726
Grand Totals, Other Countries...	3,403,238	3,965,372	4,849,772	4,726,973	4,321,971	4,679,197	4,612,597	4,858,327
Grand Totals, All Countries.....	3,967,401	4,567,751	5,546,951	5,473,346	5,050,492	5,508,921	5,482,695	5,771,052

¹ Less than \$500.² Includes Alaska and Hawaii.

The proportion of imports subject to duty varies widely between countries and geographic areas. Generally, the Canadian tariff imposes duties on a greater proportion of manufactured goods than of natural products. Countries supplying chiefly manufactures to Canada tend to have duties charged on a greater proportion of their goods and also to have relatively higher average *ad valorem* rates of duty charged on their goods than is the case with countries supplying chiefly natural products. Variations in the proportion of imports dutiable as between different countries or in the average *ad valorem* rates of duty charged on imports from different countries therefore do not necessarily indicate differences in the tariff relations between Canada and these countries.

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1959-61

Region and Country	1959			1960			1961		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Western Europe.....	516,177	438,567	954,744	507,478	453,714	961,191	532,509	501,268	1,033,777
Britain.....	218,763	369,810	588,573	206,346	382,586	588,932	201,577	416,647	618,224
Austria.....	5,351	356	5,707	6,253	352	6,605	6,242	393	6,636
Belgium and Luxembourg.....	34,299	10,487	44,786	30,272	11,129	41,401	34,434	10,346	44,780
Denmark.....	6,545	2,682	9,227	7,303	2,658	9,962	8,344	3,306	11,650
France.....	45,791	11,149	56,940	40,764	9,358	50,121	43,116	11,164	54,280
Germany, Federal Republic.....	106,642	17,263	123,905	108,818	18,170	126,988	115,613	20,917	136,530
Italy.....	31,143	6,513	37,656	36,882	5,961	42,843	42,632	6,509	49,140
Netherlands.....	23,298	5,856	29,154	24,180	7,276	31,456	25,557	7,936	33,493
Norway.....	3,359	704	4,063	2,757	1,491	4,248	3,340	5,625	8,965
Spain.....	2,142	3,485	5,627	2,916	4,031	6,947	3,613	4,930	8,543
Sweden.....	13,858	4,219	18,077	15,930	4,479	20,409	19,309	4,911	24,221
Switzerland.....	20,926	3,588	24,514	20,537	3,806	24,343	21,179	4,923	26,102
Eastern Europe.....	10,392	1,788	12,090	11,432	2,412	13,841	14,658	3,001	17,659
Czechoslovakia.....	6,264	176	6,440	6,453	201	6,654	7,929	477	8,405
Middle East.....	2,313	85,973	88,286	2,065	102,135	104,198	2,495	95,365	97,861
Kuwait.....	1	1	1	138	22,165	22,303	251	19,974	20,225
Qatar.....	2	2	2	—	8,434	8,434	—	8,724	8,724
Iran.....	126	11,822	11,948	149	30,591	30,740	156	21,465	21,622
Saudi Arabia.....	396	70,329	70,725	—	37,402	37,402	—	41,393	41,393
Other Africa.....	16,650	14,628	31,278	11,723	21,733	33,456	17,110	27,553	44,664
Nigeria.....	2,672	412	3,084	2,333	2,025	4,358	998	2,506	3,504
Republic of South Africa.....	2,273	4,291	6,564	3,500	7,981	11,482	4,775	7,870	12,645

¹ Included with Saudi Arabia prior to 1960.² Included with British Middle East, *n.e.s.* prior to 1960.

7.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1959-61—concluded

Region and Country	1959			1960			1961		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Other Asia	118,811	79,335	198,146	130,018	80,809	210,827	133,538	81,048	214,586
Ceylon.....	782	14,351	15,133	725	14,831	15,556	513	16,003	16,516
Hong Kong.....	12,284	685	12,969	14,957	577	15,534	13,625	518	14,143
India.....	6,422	22,799	29,221	7,126	22,225	29,352	7,429	26,035	33,465
Malaya and Singapore..	943	27,701	28,644	1,393	26,727	28,120	1,570	22,027	23,597
China, Communist....	1,524	3,316	4,840	1,382	4,256	5,638	1,131	2,102	3,233
Japan.....	95,091	7,578	102,669	102,016	8,366	110,382	106,714	9,894	116,607
Oceania	30,368	24,229	54,597	29,790	22,319	52,109	28,131	22,019	50,150
Australia.....	21,972	19,108	41,080	18,804	16,704	35,508	20,436	16,269	36,685
Fiji.....	4,763	1	4,764	6,475	6	6,481	2,818	5	2,824
New Zealand.....	3,631	4,963	8,594	4,490	5,609	10,099	4,842	5,704	10,546
South America	68,720	218,493	287,213	69,834	206,710	276,544	75,857	229,781	305,638
British Guiana.....	8,754	9,279	18,033	8,667	10,254	18,921	10,086	13,194	23,281
Brazil.....	20,229	8,250	28,479	17,792	7,091	24,883	19,547	9,534	29,081
Colombia.....	11,715	4,112	15,827	8,928	3,856	12,784	9,643	3,380	13,023
Ecuador.....	7,598	25	7,623	10,942	76	11,018	7,631	51	7,682
Venezuela.....	16,787	187,795	204,582	19,879	175,310	195,189	23,960	192,680	216,640
Central America and Antilles	109,189	64,253	173,422	90,133	53,706	143,839	89,653	52,955	142,608
Jamaica.....	10,405	20,607	31,012	9,888	27,800	37,688	10,331	28,754	39,085
Trinidad and Tobago..	4,329	8,402	12,731	7,298	7,213	14,512	7,305	7,175	14,480
Costa Rica.....	4,737	72	4,810	4,179	166	4,345	4,090	137	4,227
Cuba.....	11,171	841	12,011	5,884	1,359	7,243	3,963	1,190	5,154
Mexico.....	8,611	25,590	34,201	8,006	13,001	21,007	7,233	10,960	18,193
Netherlands Antilles..	47,096	25	47,120	32,413	108	32,521	30,642	495	31,137
Panama.....	8,882	7	8,889	5,988	78	6,066	6,150	18	6,168
North America	2,270,554	1,438,591	3,709,145	2,196,110	1,490,575	3,686,685	2,223,975	1,640,136	3,864,111
United States.....	2,270,533	1,438,532	3,709,065	2,196,092	1,490,534	3,686,625	2,223,850	1,640,118	3,863,968
Totals, Commonwealth and Preferential Countries	312,430	515,383	827,813	302,159	565,842	868,001	301,849	607,071	908,920
Totals, Other Countries	2,830,635	1,850,473	4,681,108	2,746,425	1,868,270	4,614,694	2,816,076	2,046,057	4,862,133
Grand Totals, Imports	3,143,065	2,365,856	5,508,921	3,048,583	2,434,112	5,482,695	3,117,926	2,653,127	5,771,053

8.—Average Ad Valorem Rates of Duty Collected on Dutiable and on Total Imports from All Countries, from Britain and from the United States 1951-60

Year	All Countries		Britain		United States	
	Average Ad Valorem Rates of Duty on—		Average Ad Valorem Rates of Duty on—		Average Ad Valorem Rates of Duty on—	
	Dutiable Imports	Total Imports	Dutiable Imports	Total Imports	Dutiable Imports	Total Imports
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1951.....	17.3	9.4	15.8	6.6	16.5	9.8
1952.....	18.2	10.1	16.5	7.3	16.8	9.9
1953.....	18.6	10.6	16.1	7.0	17.4	10.6
1954.....	18.1	10.5	16.4	7.3	17.3	10.9
1955.....	18.2	10.5	16.6	7.4	17.3	10.8
1956.....	17.5	10.4	15.8	7.3	16.7	10.7
1957.....	17.2	10.1	15.8	7.2	16.6	10.5
1958.....	17.5	10.2	20.8	8.5	16.9	10.7
1959.....	17.5	9.2	20.6	8.4	12.7	10.0
1960.....	17.5	9.7	21.1	7.4	17.2	10.2

9.—Values and Percentages of Trade with Selected Overseas Countries via the United States, 1960

Country	Domestic Exports via the United States		Imports via the United States	
	\$'000	p.c.	\$'000	p.c.
Western Europe.....	44,048	2.9	5,772	0.6
Britain.....	6,766	0.7	512	0.1
Ireland.....	339	4.4	—	—
Austria.....	519	6.7	79	1.2
Belgium and Luxembourg.....	4,897	7.1	331	0.8
Denmark.....	1,143	23.0	76	0.8
France.....	11,175	15.3	834	1.7
Germany, Federal Republic.....	2,107	1.3	341	0.3
Greece.....	838	15.1	10	1.9
Italy.....	4,260	6.2	1,881	4.4
Netherlands.....	1,837	2.9	285	0.9
Norway.....	1,207	2.0	49	1.2
Spain.....	833	8.1	455	6.5
Sweden.....	5,338	25.5	94	0.5
Switzerland.....	889	3.4	689	2.8
Eastern Europe.....	1,000	2.6	461	3.3
Czechoslovakia.....	152	2.2	23	0.3
Poland.....	345	2.1	2	0.1
Union of Soviet Socialist Republics.....	30	0.4	357	11.1
Middle East.....	4,771	19.0	57,543	55.2
Kuwait.....	381	34.9	11,200	50.2
Iran.....	861	34.5	15,045	48.9
Israel.....	923	14.9	137	5.8
Saudi Arabia.....	332	11.4	29,589	79.1
Other Africa.....	17,139	22.5	2,231	6.7
Nigeria.....	993	43.1	26	0.6
Republic of South Africa.....	13,435	25.5	190	1.7
Other Asia.....	11,261	3.8	13,381	6.3
Ceylon.....	196	7.9	—	—
Hong Kong.....	1,069	4.9	524	3.4
India.....	789	2.1	241	0.8
Malaya and Singapore.....	1,745	37.4	115	0.4
Pakistan.....	548	4.6	10	1.0
Japan.....	2,612	1.5	11,354	10.3
Philippines.....	1,287	8.7	375	19.1
Oceania.....	20,733	16.6	125	0.2
Australia.....	17,567	17.6	58	0.2
Fiji.....	84	7.9	—	—
New Zealand.....	2,862	12.0	46	0.5
South America.....	20,324	16.7	136,544	49.4
British Guiana.....	425	5.7	960	5.1
Argentina.....	1,700	8.8	199	5.5
Brazil.....	2,563	13.0	3,476	14.0
Chile.....	3,234	49.0	111	14.9
Colombia.....	2,499	15.1	930	7.3
Ecuador.....	484	12.4	6,014	54.6
Peru.....	2,434	27.4	135	4.4
Venezuela.....	5,886	16.7	123,098	63.1
Central America and Antilles.....	23,768	18.1	25,043	17.4
Jamaica.....	482	2.7	24	0.1
Trinidad and Tobago.....	80	0.6	751	5.2
Costa Rica.....	833	27.9	3,397	78.2
Cuba.....	895	6.9	434	6.0
Dominican Republic.....	689	13.6	496	31.3
Mexico.....	14,020	36.9	9,460	45.0
Netherlands Antilles.....	284	25.1	1,330	4.1
Panama.....	1,503	40.6	5,325	87.8
Puerto Rico.....	1,037	9.3	449	15.5
North America.....	165	—	—	—
Totals.....	143,210	2.7	241,100	4.4

10.—Imports Credited to Countries of Central and South America, by Country of Consignment, 1960 and 1961

Country	1960				1961			
	Consigned from Country Credited		Con-sig-ned from United States to Canada	Total Imports as Credited	Consigned from Country Credited		Con-sig-ned from United States to Canada	Total Imports as Credited
	Direct to a Canadian Port	Via a United States Port			Direct to a Canadian Port	Via a United States Port		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Central America and Antilles...	104,940	25,043	13,856	143,839	100,482	27,725	14,401	142,608
Bahamas.....	2,577	28	9	2,614	314	22	148	484
Barbados.....	2,417	—	1	2,417	5,103	—	—	5,103
Bermuda.....	641	60	—	701	220	4	1	224
British Honduras.....	49	10	32	91	708	9	33	750
Jamaica.....	37,630	24	34	37,688	39,053	18	14	39,085
Leeward and Windward Islands..	1,496	—	—	1,496	1,293	—	1	1,294
Trinidad and Tobago.....	13,737	751	24	14,512	10,047	4,413	20	14,480
United States Virgin Islands....	32	—	—	32	1	—	—	1
Costa Rica.....	357	3,397	591	4,345	283	2,883	1,061	4,227
Cuba.....	5,829	434	980	7,243	4,437	408	309	5,154
Dominican Republic.....	584	496	506	1,586	610	324	335	1,269
El Salvador.....	300	6	523	829	622	87	598	1,307
French West Indies.....	24	—	4	28	426	—	—	426
Guatemala.....	317	1,480	1,459	3,256	295	1,132	1,109	2,536
Haiti.....	123	89	770	982	215	65	530	810
Honduras.....	208	1,689	1,455	3,352	137	4,418	2,836	7,391
Mexico.....	5,046	9,460	6,501	21,007	4,761	6,907	6,525	18,193
Netherlands Antilles.....	31,109	1,330	82	32,521	30,325	427	385	31,137
Nicaragua.....	112	17	41	170	107	43	58	208
Panama.....	68	5,325	673	6,066	74	5,794	300	6,168
Puerto Rico.....	2,283	449	172	2,904	1,448	773	138	2,359
South America.....	119,098	136,544	20,902	276,544	144,969	139,268	21,401	305,638
British Guiana.....	17,960	961	—	18,921	22,311	965	5	23,281
Argentina.....	2,949	199	463	3,611	2,129	447	823	3,399
Bolivia.....	338	4	101	443	539	1	344	883
Brazil.....	14,813	3,476	6,594	24,883	17,019	3,753	8,309	29,081
Chile.....	111	111	525	747	182	130	905	1,217
Colombia.....	4,833	930	7,021	12,784	6,388	647	5,988	13,023
Ecuador.....	206	6,014	4,798	11,018	153	3,509	4,020	7,682
Paraguay.....	617	19	124	760	606	108	160	874
Peru.....	2,738	135	164	3,037	3,780	224	229	4,233
Surinam.....	2,506	1,573	77	4,156	2,442	908	132	3,482
Uruguay.....	931	25	31	987	1,730	67	37	1,834
Venezuela.....	71,086	123,098	1,005	195,189	87,680	128,511	449	216,640
Totals.....	221,038	161,587	34,758	420,383	245,450	166,994	35,802	448,246

¹ Less than \$500.

Section 4.—Trade by Commodity

The tables in this Section provide detailed information on the composition of Canada's exports and imports, with commodities shown by group and individually.

11.—Exports and Imports, by Main Group, 1960 and 1961

Group	Domestic Exports		Re-exports		Imports	
	1960	1961	1960	1961	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
All Countries.....	5,255,575	5,755,513	131,217	140,229	5,482,695	5,771,053
Agricultural and vegetable products.....	831,304	1,086,897	2,829	3,604	679,787	712,382
Animals and animal products.....	319,433	353,940	3,505	4,234	141,159	162,662
Fibres, textiles and textile products.....	40,518	44,661	6,300	4,673	431,974	456,944
Wood, wood products and paper....	1,591,919	1,639,343	3,281	4,040	266,095	285,947

11.—Exports and Imports, by Main Group, 1960 and 1961—concluded

Group	Domestic Exports		Re-exports		Imports	
	1960	1961	1960	1961	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
All Countries—concluded						
Iron and its products.....	605,225	595,153	64,024	71,077	2,046,317	2,025,438
Non-ferrous metals and their products.....	1,213,999	1,209,545	21,174	19,759	470,681	509,418
Non-metallic minerals and their products.....	339,569	430,519	6,304	6,062	669,069	684,475
Chemicals and allied products.....	237,687	248,326	5,736	3,038	338,652	370,963
Miscellaneous commodities.....	76,921	147,128	18,064	23,741	438,961	562,825
Britain.....	915,290	908,837	9,651	11,869	588,932	618,224
Agricultural and vegetable products.....	268,467	253,130	186	93	38,615	40,474
Animals and animal products.....	34,960	37,742	438	377	18,140	18,290
Fibres, textiles and textile products.....	8,821	12,051	370	575	88,503	85,617
Wood, wood products and paper.....	179,514	178,069	58	73	9,199	10,208
Iron and its products.....	72,792	50,436	5,761	7,912	271,276	257,696
Non-ferrous metals and their products.....	297,329	321,532	570	771	69,698	66,863
Non-metallic minerals and their products.....	16,577	14,154	707	613	29,251	32,131
Chemicals and allied products.....	34,088	36,695	614	181	24,909	29,601
Miscellaneous commodities.....	2,744	5,027	948	1,274	39,343	77,345
United States.....	2,932,171	3,109,109	104,245	107,342	3,686,625	3,863,968
Agricultural and vegetable products.....	174,392	182,525	1,985	2,887	364,881	388,913
Animals and animal products.....	204,485	234,438	2,752	3,338	82,334	95,184
Fibres, textiles and textile products.....	10,951	12,910	5,039	3,267	214,952	231,047
Wood, wood products and paper.....	1,257,786	1,276,381	2,994	3,650	228,585	242,001
Iron and its products.....	325,425	322,851	47,634	50,713	1,610,213	1,592,731
Non-ferrous metals and their products.....	564,910	550,998	19,259	17,753	295,762	324,917
Non-metallic minerals and their products.....	248,270	322,551	5,067	4,588	268,144	266,353
Chemicals and allied products.....	92,220	101,009	4,507	2,392	282,723	305,990
Miscellaneous commodities.....	53,731	105,446	15,008	18,754	339,031	416,832

12.—Leading Domestic Exports, 1956-61

NOTE.—Commodities are arranged in order of value in 1961.

Commodity	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	708,385	715,490	690,209	722,271	757,930	761,313
Wheat.....	513,081	380,415	446,078	441,830	410,453	661,785
Lumber and timber.....	328,099	282,690	293,600	323,717	346,300	354,866
Wood pulp.....	304,636	292,406	285,449	311,253	325,122	346,661
Nickel and products.....	222,909	248,253	212,580	226,857	251,248	338,457
Aluminum and products.....	236,163	230,495	223,620	232,426	269,420	250,727
Copper and products.....	205,600	154,357	139,696	166,067	223,916	201,803
Uranium ores and concentrates.....	45,777	127,934	276,506	311,904	263,541	192,722
Petroleum, crude and partly refined.....	103,923	140,975	73,044	74,541	94,450	154,267
Iron ore.....	144,443	152,281	107,674	157,814	155,472	135,835
Asbestos, unmanufactured.....	99,895	107,058	90,745	110,431	120,113	131,341
Synthetic rubber and plastics materials, not shaped.....	1	1	1	1	109,144	103,832
Machinery (non-farm) and parts.....	47,130	57,177	46,881	48,403	67,074	96,694
Whisky.....	68,660	66,994	70,276	78,262	79,220	80,397
Aircraft and parts (except engines).....	49,545	39,910	109,113	24,960	20,745	80,127
Fish, fresh and frozen.....	59,594	63,186	70,898	66,523	68,833	72,528
Farm implements and machinery (except tractors) and parts.....	63,937	67,339	93,829	110,205	81,279	70,538
Wheat flour.....	71,549	61,175	69,398	64,903	62,239	60,783
Zinc and products.....	74,232	65,118	55,510	55,465	63,672	58,950
Electrical apparatus, n.o.p.....	21,407	25,186	24,944	32,571	47,282	55,817
Rolling-mill products (iron and steel).....	25,719	33,043	31,833	53,509	73,979	55,765

1 Data for 1956-59 not comparable with subsequent years.

12.—Leading Domestic Exports, 1956-61—concluded

Commodity	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Fertilizers, chemical.....	49,211	48,958	46,476	48,792	52,348	53,279
Pigs, ingots, blooms and billets (iron and steel).....	20,749	42,226	24,278	32,622	53,349	52,232
Barley.....	94,977	67,522	78,118	66,310	51,441	48,966
Cattle, chiefly for beef.....	630	41,678	84,101	40,404	26,573	48,034
Flaxseed.....	43,629	64,723	45,056	41,226	47,283	46,269
Gas exported by pipeline.....	—	—	17,984	16,953	18,051	41,689
Engines and boilers.....	30,912	38,365	34,636	40,827	47,664	39,439
Plywoods and veneers.....	29,020	22,366	22,524	32,351	32,717	34,191
Pulpwood.....	49,794	48,459	34,655	29,737	31,186	33,811
Scrap iron and steel.....	30,427	28,620	12,394	12,781	13,675	33,295
Lead and products.....	35,046	29,432	26,125	25,531	26,140	27,830
Abrasives, artificial, crude.....	28,389	33,911	22,717	27,737	31,736	27,657
Tobacco, unmanufactured.....	17,320	21,905	18,555	25,140	25,327	27,617
Molluscs and crustaceans.....	20,554	20,413	19,220	21,231	23,268	24,852
Fur skins, undressed.....	25,893	25,944	23,322	24,128	23,161	23,949
Shingles.....	24,546	19,393	19,828	21,406	20,968	20,779
Fish, cured.....	22,835	24,513	22,700	21,791	22,153	20,678
Silver, unmanufactured.....	18,693	16,635	18,554	19,721	19,571	19,548
Automobiles, passenger.....	17,027	22,629	19,382	16,316	24,261	16,748

13.—Leading Imports, 1956-61

NOTE.—Commodities are arranged in order of value in 1961.

Commodity	1956	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.....	628,521	631,599	532,916	585,235	579,791	603,097
Automobile parts (except engines).....	284,788	260,075	240,526	288,596	296,571	304,487
Petroleum, crude and partly refined.....	271,291	305,557	278,540	277,495	280,071	291,170
Electrical apparatus, n.o.p.....	257,292	249,328	240,112	269,462	260,473	265,260
Aircraft and parts (except engines).....	91,304	93,691	94,820	76,745	116,394	216,964
Engines and boilers.....	132,325	138,451	134,603	135,002	141,419	182,575
Automobiles, passenger.....	125,539	106,596	141,543	199,601	220,144	157,003
Tractors and parts.....	159,627	127,658	117,290	172,069	131,541	135,947
Rolling-mill products (iron and steel).....	234,709	221,257	147,049	131,263	133,007	110,812
Farm implements and machinery (except tractors) and parts.....	72,522	74,572	81,006	101,752	97,118	95,680
Cotton fabrics.....	62,130	65,049	66,168	70,058	75,150	75,896
Paperboard, paper and products.....	61,654	62,027	65,478	68,051	68,660	75,381
Synthetic plastics, primary forms.....	47,092	49,747	54,891	61,024	64,554	71,382
Apparel (except hats) of all textiles.....	44,793	47,034	48,903	61,830	63,875	71,099
Fuel oils.....	81,593	76,204	64,886	77,093	66,853	59,789
Coal, bituminous.....	96,516	90,692	67,067	65,115	50,677	58,777
Sugar, unrefined.....	55,828	75,632	58,578	56,810	50,774	55,204
Parcels of small value.....	49,371	51,982	53,583	54,514	53,764	55,066
Bauxite and alumina for aluminum.....	24,635	38,831	30,284	31,345	39,529	52,775
Coffee, green.....	62,657	59,120	55,252	50,326	47,314	52,184
Books, printed.....	27,950	31,468	34,765	39,458	43,391	48,794
Vegetables, fresh.....	43,694	41,614	43,431	43,285	49,436	47,827
Iron ore.....	38,722	36,387	28,932	27,129	48,370	47,433
Cotton, raw.....	58,748	49,487	45,416	43,079	49,928	47,813
Pipes, tubes and fittings (iron and steel).....	123,088	147,727	88,371	55,305	48,405	46,092
Newspapers, magazines and advertising matter.....	34,435	35,727	37,012	38,392	39,224	43,937
Principal chemicals (except acids), n.e.s.....	61,871	54,487	41,785	42,617	43,934	43,770
Drugs and medicines.....	26,560	28,729	29,619	32,824	32,947	41,349
Logs, timber and lumber.....	40,555	31,582	35,697	44,955	39,603	39,804
Tools.....	32,779	36,227	34,737	36,517	34,279	37,911
Citrus fruits, fresh.....	32,696	32,864	36,058	35,316	36,528	36,839
Wool fabrics.....	40,191	40,938	35,848	35,668	35,327	36,339
Rubber, crude and semi-fabricated.....	40,610	39,101	30,779	52,063	42,567	35,007
Glass, cut, pressed or blown.....	20,141	21,393	23,783	24,772	25,366	31,608
Cooking and heating apparatus, and parts.....	41,717	38,265	38,009	39,426	33,101	31,424
Soybeans.....	24,377	23,727	23,442	28,058	32,204	30,261
Canadian goods returned.....	10,052	9,162	11,987	10,337	24,191	30,116
Vegetable oils (except essential oils).....	21,624	21,003	25,061	24,316	22,192	29,718
Fruit juices and syrups.....	19,126	19,672	25,514	28,178	26,016	29,436
Synthetic fabrics.....	23,570	25,336	26,895	27,927	27,455	29,326

Detailed Exports and Imports.—Detailed statistics of all commodities of any importance exported from Canada to all countries, to Britain and to the United States during the years 1959 and 1960 are given in Table 14; corresponding statistics for imports into Canada appear in Table 15. Details for 1961 were not available at the time of going to press.

14.—Principal Domestic Exports from Canada to All Countries, to Britain and to the United States, 1959 and 1960

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
I. Agricultural and Vegetable Products (except chemicals, fibres and wood)						
A. MAINLY FOOD						
Fruits—						
Apples, fresh.....	6,488	7,998	2,619	3,203	2,934	3,422
Berries, fresh.....	2,429	3,126	—	—	2,429	3,125
Fresh fruits, <i>n.o.p.</i>	343	985	16	30	324	943
Canned or preserved fruits.....	1,481	904	588	218	508	440
Fruit juices, fruit syrups, and dried fruits.....	425	393	2	33	136	78
Vegetables—						
Potatoes (except seed potatoes).....	1,385	1,891	—	—	302	150
Fresh vegetables, <i>n.o.p.</i>	3,624	4,191	—	—	3,399	4,037
Canned vegetables, including soups of all kinds	2,800	6,069	1,115	4,469	106	226
Pickles, sauces, catsups, and dried vegetables.....	222	459	62	286	49	42
Grains and Farinaceous Products—						
Wheat.....	441,830	410,453	148,215	135,427	12,863	13,755
Grain, other (including rice).....	86,192	68,691	43,311	35,673	22,715	17,372
Flour of wheat.....	64,903	62,239	23,279	22,661	2,161	1,809
Bran, meal and other milled products, <i>n.o.p.</i>	3,337	4,704	500	1,620	1,007	1,023
Bread, biscuits, cereals and other bakery products and prepared foods.....	3,850	3,905	67	57	2,975	3,200
Malt.....	10,923	10,908	—	—	5,376	6,207
Sugar and Its Products—						
Maple syrup.....	1,894	3,075	16	30	1,876	3,042
Maple sugar.....	2,974	2,534	—	—	2,915	2,475
Sugar and products, <i>n.o.p.</i>	800	1,405	26	33	466	952
Coffee, and imitations of.....	37	47	1	—	1	5
Tea.....	964	1,070	—	—	963	1,068
Vegetable food products, other.....	1,522	2,167	26	191	715	1,038
TOTALS, A. MAINLY FOOD.....	638,425	597,216	219,844	203,930	64,221	64,412
B. OTHER THAN FOOD						
Ale, beer and porter.....	4,259	4,369	—	—	4,065	4,189
Whisky.....	78,262	79,220	463	480	72,179	73,917
Oil cake and oil cake meal.....	15,285	14,562	14,833	14,379	308	95
Oils, vegetable, not edible.....	3,129	2,928	2,921	2,753	101	119
Rubber, and manufactures of.....	11,582	8,483	183	442	6,798	2,850
Flaxseed.....	41,226	47,283	18,109	20,746	1	1
Seed potatoes, Government certified.....	4,122	3,508	—	—	1,720	1,409
Seeds, <i>n.o.p.</i>	23,977	25,560	1,974	1,758	8,140	7,974
Tobacco, unmanufactured.....	25,140	25,327	19,972	21,797	277	441
Tobacco, manufactured.....	454	258	59	42	113	97
Peat moss and other mosses.....	8,976	8,826	—	—	8,975	8,825
Fodders, <i>n.o.p.</i>	8,651	7,553	605	1,588	7,117	5,123
Hay.....	1,764	1,958	—	—	1,704	1,908
Vegetable products, other, not food.....	3,652	4,426	455	602	2,701	3,065
TOTALS, B. OTHER THAN FOOD.....	230,479	234,262	59,574	64,586	114,201	110,013
Totals, Agricultural and Vegetable Products.....	868,904	831,479	279,418	268,516	178,422	174,425

¹ Less than \$500.

14.—Principal Domestic Exports from Canada to All Countries, to Britain and to the United States, 1959 and 1960—continued

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
II. Animals and Animal Products (except chemicals and fibres)						
Animals, Living—						
Cattle, swine, sheep and poultry, pure bred, for improvement of stock.....	7,763	7,475	11	115	7,077	6,091
Cattle, <i>n.o.p.</i>	44,375	30,693	—	—	44,196	30,553
Horses.....	1,632	1,051	3	1	1,623	1,046
Other animals, living.....	1,160	835	240	93	773	477
Fish and Fishery Products, <i>n.o.p.</i>—						
Fish, fresh and frozen.....	66,523	68,833	62	1,833	65,660	65,665
Fish, salted, dried, pickled and smoked.....	21,791	22,153	1	1	5,386	5,429
Fish, canned or preserved, <i>n.o.p.</i>	25,982	15,145	17,335	6,250	613	591
Molluscs and crustaceans.....	21,231	23,268	333	628	20,361	21,893
Other fishery products, <i>n.o.p.</i>	8,689	5,235	2,575	895	5,460	3,866
Fur skins, undressed.....						
Fur skins, dressed, and manufactures of fur.....	24,128	23,161	4,536	5,041	18,458	16,893
Hair and bristles.....	2,020	1,555	106	149	1,448	772
Hides and skins, raw (except fur skins).....	469	394	29	29	388	290
Leather, unmanufactured.....	15,169	16,567	1,669	1,494	6,408	4,385
Leather, manufactures of.....	10,999	8,932	1,541	1,879	6,117	4,420
	2,557	2,666	136	532	1,782	1,548
Meats—						
Fresh, chilled and frozen.....	26,684	22,759	1	20	24,182	20,404
Bacon and hams, shoulders and sides, cured, <i>n.o.p.</i>	4,555	4,470	47	—	3,790	3,604
Meats, other, and preparations of meats.....	11,630	17,156	188	1,897	6,478	8,248
Butter.....						
Cheese.....	5,899	1,710	5,888	1,610	—	—
Milk, processed.....	7,230	6,494	6,864	5,978	233	343
Milk and its products, <i>n.o.p.</i>	17,685	17,434	1	—	85	43
Oils, fish, seal and whale.....	528	704	1	1	258	433
Animal oils, fats, greases and wax, <i>n.o.p.</i>	2,356	2,053	1,548	1,440	533	503
Eggs.....	7,459	5,990	4,353	4,072	642	167
Sausage casings.....	8,682	3,615	358	150	411	874
Horsemeat, not for human consumption, and animal food, prepared.....	2,854	3,188	454	554	1,624	1,572
Animal products, <i>n.o.p.</i>	3,779	3,665	6	6	3,391	2,957
	2,148	2,744	259	420	1,715	1,723
Totals, Animals and Animal Products.....	355,975	319,945	48,542	35,088	229,092	204,790
III. Fibres, Textiles and Textile Products						
Cotton—						
Cotton rags and waste.....	712	774	58	81	287	304
Fabrics.....	1,971	5,170	3	2,847	825	625
Clothing (including socks and stockings).....	865	1,775	43	497	244	232
Cotton manufactures, <i>n.o.p.</i>	507	510	1	50	85	54
Flax, Hemp and Jute—						
Waste bagging and cloth of jute.....	241	230	—	—	239	230
Flax, hemp and jute products, other.....	149	273	1	1	140	246
Wool—						
Raw wool (including noils and tops).....	2,021	1,609	891	559	1,049	1,002
Wool rags and waste.....	1,639	1,265	80	75	613	448
Wool fabrics.....	82	68	1	2	56	17
Clothing (except socks and stockings).....	1,412	1,352	4	52	1,243	1,117
Wool manufactures, <i>n.o.p.</i>	173	232	15	21	151	202
Synthetic Fibres—						
Thread and yarn.....	4,278	11,921	51	3,063	175	232
Fabrics.....	689	2,541	130	431	110	118
Clothing (except socks and stockings).....	432	678	12	141	80	244
Synthetic fibre manufactures, <i>n.o.p.</i>	444	1,140	2	13	112	722
Rags and waste, <i>n.o.p.</i>	1,400	1,282	8	22	578	675

¹ Less than \$500.

**14.—Principal Domestic Exports from Canada to All Countries, to Britain
and to the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
III. Fibres, Textiles and Textiles Products—						
concluded						
Synthetic Fibres—concluded						
Baler twine.....	1	2,717	1	—	1	2,717
Binder twine.....	586	368	—	—	586	368
Cordage, rope and twine, <i>n.o.p.</i>	4,778	1,538	2	1	2,961	68
Felt manufactures.....	1,368	1,861	79	169	60	7
Clothing, <i>n.o.p.</i> (including socks and stockings, <i>n.o.p.</i>).....	663	1,244	5	579	278	191
Oilcloth and linoleum.....	270	256	—	2	2	1
Textile products, <i>n.o.p.</i>	316	412	11	40	126	201
Totals, Fibres, Textiles and Textile Products.....	24,997	39,219	1,395	8,643	10,003	10,022
IV. Wood, Wood Products and Paper						
Wood, Unmanufactured or Partially Manufactured—						
Logs.....	2,250	3,091	543	647	1,245	1,705
Pit props.....	947	200	828	200	31	—
Poles.....	3,811	5,063	—	—	3,757	4,983
Railway ties.....	4,223	3,202	553	929	396	362
Billets and blocks.....	1,396	1,324	26	56	1,356	1,247
Lumber and timber.....	323,717	346,300	27,647	53,052	272,445	259,582
Laths.....	1,293	1,284	—	—	1,290	1,281
Pickets.....	676	717	—	—	676	717
Shingles.....	21,406	20,968	286	362	20,878	20,374
Veneers and plywoods.....	32,351	32,717	8,079	10,518	23,947	21,570
Christmas trees.....	6,026	6,442	—	—	6,883	6,375
Pulpwood.....	29,737	31,186	2,330	2,128	25,780	26,341
Spoolwood.....	753	710	515	469	228	242
Wood, unmanufactured, <i>n.o.p.</i>	1,292	1,797	2	—	1,148	1,312
Wood, Manufactured—						
Wood pulp.....	311,253	325,122	24,727	32,203	254,049	256,170
Furniture of wood.....	605	749	2	2	269	284
Match splints.....	1,249	1,270	1,074	1,100	—	—
Manufactures of wood, <i>n.o.p.</i>	4,955	5,984	731	893	3,616	4,131
Paper—						
Pulpboard, wallboard and paperboard.....	13,320	14,443	7,853	11,313	4,997	2,591
Book paper.....	9,392	9,696	423	571	7,445	7,464
Newsprint paper.....	722,271	757,930	51,566	60,163	616,730	631,230
Wrapping paper.....	7,098	5,408	4,025	3,259	1,737	997
Newsprint paper, mutilated or beater stock; and waste paper.....	3,531	3,270	289	111	2,806	2,692
Paper and manufactures of, <i>n.o.p.</i>	6,619	7,956	708	1,042	2,112	2,437
Books, newspapers and other printed and litho- graphed matter.....						
	4,891	5,089	287	494	3,913	3,700
Totals, Wood, Wood Products and Paper..	1,515,962	1,591,919	132,512	179,514	1,257,745	1,257,786
V. Iron and Its Products						
Iron ore.....	157,814	155,472	22,428	27,722	117,810	101,903
Ferro-alloys.....	5,715	6,162	2,434	3,838	3,019	1,504
Pigs, ingots, blooms and billets.....	32,622	53,349	5	17,602	31,608	22,936
Scrap iron.....	12,781	13,675	2	162	7,607	4,666
Castings and forgings.....	4,043	4,057	8	23	3,971	3,857
Rolling-mill products.....	53,509	73,979	1,845	12,179	39,015	25,879
Tubes, pipes and fittings.....	16,493	7,436	10	180	15,501	6,575
Wire, iron.....	3,864	2,531	62	368	3,482	1,532
Engines and boilers and parts.....	40,827	47,664	877	1,749	25,351	27,179
Farm implements and machinery and parts.....	114,695	85,426	113	159	109,613	79,634
Hardware and cutlery.....	6,184	5,951	41	115	4,588	3,543
Machinery and parts (except agricultural).....	48,403	67,074	1,948	5,270	18,713	26,323
Tools.....	2,895	3,498	273	160	502	548

¹ Included with "Cordage, rope and twine, *n.o.p.*".

² Less than \$500.

**14.—Principal Domestic Exports from Canada to All Countries, to Britain
and to the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
V. Iron and Its Products—concluded						
Automobiles, freight.....	2,332	3,775	—	2	29	39
Automobiles, passenger.....	16,316	24,261	780	1,223	214	424
Automobile parts.....	16,655	23,818	74	167	6,985	3,785
Vehicles and parts, <i>n.o.p.</i> (see also Miscellaneous Commodities).....	13,618	10,645	93	147	10,148	8,017
Ball bearings, roller bearings and parts.....	1,627	2,596	11	505	865	782
Lamps and lanterns of metal.....	1,107	822	13	9	5	6
Stoves and heating apparatus and parts.....	1,775	2,139	337	742	246	332
Other iron and steel, and manufactures of.....	10,067	10,893	277	469	6,250	5,959
Totals, Iron and Its Products.....	563,344	605,225	31,630	72,792	405,520	325,425
VI. Non-ferrous Metals and Their Products (except gold)						
Aluminum, and manufactures of.....	232,426	269,420	68,736	79,696	80,417	54,219
Brass, and manufactures of.....	5,837	7,899	158	304	2,668	1,965
Copper, and manufactures of.....	166,067	223,916	50,098	71,412	72,063	85,290
Lead, and manufactures of.....	25,531	26,140	6,264	8,528	15,193	11,253
Nickel.....	226,857	258,331	46,219	67,896	114,019	88,596
Precious metals, and manufactures of (except gold).....	33,801	37,105	11,857	15,127	20,278	18,618
Zinc, and manufactures of.....	55,465	63,672	16,084	20,457	36,022	31,933
Clocks and watches and parts.....	1,035	1,108	10	6	95	60
Electrical apparatus, <i>n.o.p.</i> (including radio and wireless).....	32,571	47,282	174	697	12,595	27,122
Printing materials.....	356	1,035	30	17	314	998
Uranium ores and concentrates.....	311,904	263,541	32,603	25,905	278,913	236,594
Ores, <i>n.o.p.</i>	5,249	4,714	1,274	419	218	474
Cobalt, metal.....	1,203	1,368	174	164	921	789
Metallic scrap, dross and ashes, <i>n.o.p.</i>	1,969	1,697	38	53	1,712	1,423
Cadmium.....	2,244	2,627	999	1,372	1,127	1,211
Magnesium.....	3,880	3,223	1,779	2,290	86	265
Selenium and salts.....	1,846	2,796	1,114	1,602	665	744
Other non-ferrous metals and manufactures of...	6,543	6,594	870	1,386	4,411	3,356
Totals, Non-ferrous Metals and Their Products.....	1,114,784	1,222,476	238,483	297,329	641,718	564,910
VII. Non-metallic Minerals and Their Products (except chemicals)						
Asbestos, and manufactures of.....	111,141	121,112	9,129	9,387	54,946	54,351
Clay, and manufactures of.....	5,108	5,266	1	28	3,797	3,755
Coal.....	3,582	6,789	—	—	2,496	2,242
Coke.....	3,343	2,583	1,208	393	1,935	2,167
Coal products, <i>n.o.p.</i>	1,009	2,997	—	1	1,009	2,995
Glass, and manufactures of.....	1,935	1,896	2	13	1,377	1,166
Petroleum and its products.....	80,187	102,754	12	15	79,627	101,666
Abrasives.....	28,711	32,606	2,922	3,960	25,187	28,016
Lime, plaster and cement.....	15,624	10,604	2	19	15,472	10,461
Stone and its products, <i>n.o.p.</i>	7,737	7,502	292	222	6,629	6,820
Carbon and graphite electrodes.....	340	735	194	—	12	104
Salt.....	4,640	3,461	—	56	4,630	3,398
Gas exported by pipeline.....	16,953	18,051	—	—	16,953	18,051
Other non-metallic minerals, and manufactures of	13,924	23,213	386	2,484	10,112	13,080
Totals, Non-metallic Minerals and Their Products.....	294,235	339,569	14,147	16,577	224,183	248,270
VIII. Chemicals and Allied Products						
Acids.....	3,977	5,205	1,177	1,445	1,073	1,580
Alcohols, industrial.....	535	594	153	285	198	23
Drugs, medicinal and pharmaceutical prepara- tions.....	6,759	5,726	389	226	377	430

¹ Less than \$500.

**14.—Principal Domestic Exports from Canada to All Countries, to Britain
and to the United States, 1959 and 1960—concluded**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
VIII. Chemicals and Allied Products—concluded						
Fertilizers.....	48,792	52,348	1	1	40,836	46,545
Paints and varnishes.....	3,237	2,409	7	100	1,365	1,103
Calcium compounds.....	4,283	3,345	213	4	2,453	1,786
Soda and sodium compounds.....	1,357	1,537	141	9	952	1,208
Cobalt oxides and cobalt salts.....	1,578	1,753	1,316	1,625	159	61
Inorganic chemicals, <i>n.o.p.</i>	2,165	3,294	—	—	2,160	3,289
Plastics and products, <i>n.o.p.</i>	25,713	7,455	2,222	1,156	2,456	885
Polystyrene.....	8,382	7,583	951	1,905	430	67
Radioactive materials, <i>n.o.p.</i>	1,971	1,077	152	121	1,336	771
Chemicals and allied products, <i>n.o.p.</i>	92,980	145,361	20,660	27,210	32,115	34,471
Totals, Chemicals and Allied Products.....	201,729	237,687	27,382	34,088	85,910	92,220
IX. Miscellaneous Commodities						
Toys, dolls and other amusement and sporting goods, <i>n.o.p.</i>	3,253	3,621	21	77	2,796	3,040
Brushes.....	165	170	13	22	9	2
Containers, <i>n.o.p.</i>	2,171	2,825	33	66	554	587
Household and Personal Equipment, <i>n.o.p.</i> —						
Pens, pencils and parts.....	477	739	100	51	5	39
Power-operated refrigerators and parts.....	565	860	1	78	58	101
Other household and personal equipment, <i>n.o.p.</i>	1,282	2,112	72	264	363	793
Musical instruments and parts.....	756	1,261	1	3	744	1,242
Cameras, films and philosophical and scientific apparatus.....	9,438	13,317	575	928	4,160	6,747
Ships and vessels and materials for ships.....	12,390	2,053	10,729	22	1,098	1,215
Aircraft and parts.....	24,960	20,745	257	876	20,513	14,699
Vehicles and parts, <i>n.o.p.</i> (see also Iron).....	292	272	—	1	273	261
Cartridges.....	185	342	5	75	79	61
Contractors' outfits and supplies.....	4,563	6,523	—	37	90	5,040
Electric energy.....	13,955	15,526	—	—	13,955	15,526
Shipments under \$50 in value.....	4,716	4,612	78	100	3,849	3,643
All other articles exported.....	2,576	1,556	409	144	2,010	1,325
Totals, Miscellaneous Commodities.....	81,742	76,534	12,293	2,744	50,559	54,321
Grand Totals, Exports.....	5,021,672	5,264,052	785,802	915,290	3,083,151	2,932,171

¹ Less than \$500.

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
I. Agricultural and Vegetable Products (except chemicals, fibres and wood)						
A. MAINLY FOOD						
Fruits—						
Fresh.....	89,622	93,022	18	41	60,657	61,273
Dried.....	17,231	16,205	160	201	7,236	7,813
Canned or preserved.....	24,603	26,183	1,161	1,086	14,767	15,677
Fruit juices and fruit syrups.....	28,178	26,016	112	99	27,468	25,305
Cocoanuts and preparations of.....	2,055	1,967	1	15	1,024	948
Nuts, not shelled and shelled.....	18,205	19,944	117	242	7,105	5,754

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
I. Agricultural and Vegetable Products (except chemicals, fibres and wood)— concluded						
Vegetables—						
Fresh.....	46,666	52,267	20	1	42,049	46,225
Dried.....	2,069	2,612	2	2	1,959	2,464
Canned.....	8,114	8,536	100	113	6,016	5,909
Pickles, sauces and catsups.....	4,051	3,713	126	139	3,066	2,626
Grains and Farinaceous Products—						
Grain (including rice).....	49,385	57,463	9	23	45,967	53,308
Biscuits, and other bakery products and prepared foods.....	8,760	9,023	4,312	4,277	3,586	3,881
Milled products and farinaceous products, <i>n.o.p.</i>	1,971	1,866	20	18	1,767	1,614
Sugar and Its Products—						
Confectionery, including candy.....	12,881	15,363	6,303	6,803	3,593	5,113
Molasses and syrups.....	5,030	4,128	90	86	1,350	1,058
Sugar and sugar products, <i>n.o.p.</i>	56,881	50,717	1	1	17	15
Cocoa beans and cocoa and chocolate preparations	20,699	18,213	4,423	4,364	4,153	2,589
Coffee and chicory.....	59,649	56,569	145	104	12,179	12,134
Spices.....	2,902	3,858	310	441	840	871
Tea.....	23,104	23,605	4,326	3,530	378	282
Vegetable products, mainly food, <i>n.o.p.</i>.....	6,049	6,253	543	467	5,273	5,429
TOTALS, A. MAINLY FOOD.....	488,103	497,522	22,301	22,053	250,449	260,288
B. OTHER THAN FOOD						
Beverages, Alcoholic—						
Ale, beer, porter and stout.....	395	485	339	390	1	1
Whisky and other distilled beverages.....	16,457	15,772	8,904	8,724	1,316	1,156
Wines.....	6,066	6,509	500	512	351	364
Gums and resins.....	8,137	8,809	262	152	6,622	7,922
Oil cake and oil cake meal.....	14,352	10,644	—	—	14,350	10,642
Oils, vegetable.....	29,142	27,206	3,034	2,140	14,471	15,961
Plants, shrubs, trees, vines and florist stock.....	7,617	7,764	16	19	4,486	4,663
Rubber, crude and partially manufactured.....	52,063	42,587	658	600	25,669	17,678
Rubber, manufacturers of.....	41,080	42,127	3,445	3,325	28,131	29,251
Seeds.....	7,331	6,856	426	278	5,819	5,677
Tobacco, unmanufactured.....	3,294	3,950	7	—	2,358	2,852
Tobacco, manufactured.....	2,189	2,222	267	293	1,428	1,376
Vegetable products, not food, <i>n.o.p.</i>.....	7,769	8,810	225	264	6,822	7,666
TOTALS, B. OTHER THAN FOOD.....	195,923	183,743	18,084	16,697	111,827	105,206
TOTALS, Agricultural and Vegetable Products.....	684,026	681,265	40,385	38,750	362,276	365,495
II. Animals and Animal Products (except chemicals and fibres)						
Animals, Living—						
Animals, pure bred, for improvement of stock.....	3,105	3,735	375	165	2,703	3,535
Common livestock.....	8,511	2,239	35	21	8,465	2,210
Animals, living, <i>n.o.p.</i>	1,519	1,397	45	11	1,099	1,046
Bone, ivory and shell products.....	1,145	1,070	389	326	638	623
Fish and Fishery Products, <i>n.o.p.</i>—						
Fish, fresh and frozen.....	2,388	2,347	18	4	1,270	1,191
Fish, salted, dried, pickled and smoked.....	812	861	289	245	52	47
Fish, canned or preserved, <i>n.o.p.</i>	4,266	4,693	110	111	224	1,016
Molluscs and crustaceans.....	6,251	6,395	2	2	4,536	4,643
Sponges and other articles of the fisheries, <i>n.o.p.</i>	1,036	1,311	7	6	766	801

¹ Less than \$500.

15.—Principal Imports into Canada for Consumption from All Countries, from Britain and from the United States, 1959 and 1960—continued

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
II. Animals and Animal Products (except chemicals and fibres)—concluded						
Fur skins, undressed.....	20,878	19,065	4,203	4,560	13,284	11,160
Fur skins, wholly or partially dressed, and manufactures of fur.....	4,846	4,393	460	288	3,563	3,483
Hair and bristles, and manufactures of.....	1,368	1,515	759	868	389	356
Hides and skins, raw (except fur skins).....	11,043	8,680	34	53	10,449	8,084
Leather, unmanufactured.....	12,936	10,611	6,723	5,383	4,927	4,313
Leather, manufactured.....	14,136	14,367	5,236	5,103	4,586	3,629
Meats, fresh and frozen.....	14,673	22,883	10	—	5,774	15,009
Meats, other, and preparations of meat.....	14,793	13,734	339	316	7,669	8,932
Milk and its products.....	6,556	7,160	125	70	1,033	1,052
Oils, fish, seal and whale.....	992	1,077	288	224	556	696
Animal oils, fats, greases and wax, <i>n.o.p.</i>	2,238	3,945	40	58	2,020	3,731
Gelatine, edible.....	1,238	962	126	73	760	653
Sausage casings, cleaned.....	3,226	3,442	—	—	46	36
Animal products, <i>n.o.p.</i>	8,677	7,811	783	856	7,062	6,221
Totals, Animals and Animal Products.....	146,635	143,693	20,395	18,743	81,872	82,468
III. Fibres, Textiles and Textile Products						
Cotton—						
Raw and unmanufactured.....	45,049	51,537	42	23	21,872	48,729
Yarn, thread and cordage.....	8,829	9,810	3,062	3,066	5,458	5,628
Piece goods (fabrics).....	70,058	75,150	3,815	3,673	50,770	53,305
Lace and embroideries.....	1,470	1,670	103	94	319	318
Clothing and wearing apparel.....	19,436	21,144	1,428	1,360	5,527	5,610
Cotton manufactures, <i>n.o.p.</i>	14,015	13,611	1,021	1,001	8,971	8,764
Flax, Hemp and Jute—						
Yarn, thread and twine.....	1,834	1,810	1,188	1,127	95	73
Piece goods (fabrics).....	14,169	13,751	1,707	1,790	891	823
Other flax, hemp and jute and manufactures of.....	9,921	9,056	2,059	1,987	4,172	3,755
Silk—						
Piece goods (fabrics).....	7,334	8,196	128	153	4,339	4,207
Clothing and wearing apparel.....	2,348	2,326	254	231	966	974
Other silk, and manufactures of.....	288	275	25	12	229	239
Wool—						
Raw and unmanufactured.....	25,872	27,217	15,201	15,001	3,102	3,437
Yarns and warps.....	4,837	5,709	4,177	4,717	196	131
Piece goods (fabrics).....	35,668	35,327	29,202	27,222	1,117	1,258
Carpets and rugs.....	10,293	9,408	3,130	3,546	467	421
Clothing and wearing apparel.....	14,568	17,066	7,763	8,576	1,396	1,470
Wool manufactures, <i>n.o.p.</i>	1,593	1,704	735	782	612	586
Synthetic Textile Fibres—						
Unmanufactured synthetic textile fibre.....	5,850	5,526	316	635	4,353	4,224
Yarn, twist and thread.....	8,975	6,847	166	107	5,611	5,053
Piece goods (fabrics).....	27,927	27,455	1,030	1,013	23,405	21,247
Clothing and wearing apparel.....	20,208	17,863	2,010	944	6,614	6,510
Synthetic textile fibre manufactures, <i>n.o.p.</i>	7,868	7,878	282	315	6,499	6,447
Kapok; manila fibre; sisal, istle and tampico fibre; and other vegetable fibres—not coloured or further manufactured than dried, cleaned, cut to size, ground and sifted.....						
	7,699	7,614	29	16	3,952	4,125
Grasses and vegetable fibres, and manufactures of, <i>n.o.p.</i>.....						
	1,108	1,065	113	93	400	365
Mixed Textile Products—						
Rags and waste.....	6,077	6,150	319	329	5,232	5,286
Cordage, rope, twine, threads, fish nets and nettings, and fish lines, <i>n.o.p.</i>	7,819	7,965	3,682	3,127	731	840
Oilcloths and other coated or impregnated cloth.....	20,615	20,801	5,315	4,953	14,035	14,827
Lace and embroideries, <i>n.o.p.</i>	2,751	3,411	308	271	1,818	2,114
Hats, caps, bonnets, berets, hoods and shapes.....	4,712	4,924	546	582	2,469	2,268
Clothing and wearing apparel, <i>n.o.p.</i>	3,013	3,328	82	89	2,021	1,955
Hat braids, hat sweats, etc., for hats and caps.....	891	870	7	11	555	521
Other textile products.....	7,055	7,085	891	880	4,879	4,758
Totals, Fibres, Textiles and Textile Products.....	420,152	433,549	90,137	87,726	193,075	220,269

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
IV. Wood, Wood Products and Paper						
Wood, Unmanufactured or Partially Manufactured—						
Logs and unmanufactured round timber.....	10,770	13,804	—	—	10,770	13,799
Lumber and timber, <i>n.o.p.</i>	37,332	30,498	11	6	34,676	28,334
Plywoods, veneers and other sawmill and planing mill products, <i>n.o.p.</i>	17,057	8,956	512	44	8,940	3,179
Pulpwood and other unmanufactured wood....	3,812	5,032	—	—	3,712	4,928
Wood, Manufactured—						
Barrels, staves, headings and other cooperage.	1,664	2,172	31	1	1,632	2,171
Corks and other manufactures of corkwood or cork bark.....	3,401	2,886	88	61	1,011	849
Wood pulp.....	8,967	8,657	—	—	8,093	7,996
Fibre, vulcanized, kartavert, indurated fibre and like material, and manufactures of, <i>n.o.p.</i>	1,206	995	12	14	1,088	866
Furniture (except of metal).....	10,479	10,626	220	217	7,945	7,628
Manufactures of wood, <i>n.o.p.</i>	12,432	12,713	421	477	9,653	9,181
Paper—						
Wallboard and other pulpboards and fibreboards.....	20,117	19,651	232	233	18,662	17,815
Printing paper.....	5,623	6,058	516	646	5,076	5,350
Wrapping and packing paper.....	3,058	2,864	36	38	2,938	2,717
Writing, bond and ledger papers.....	1,470	1,707	36	32	1,411	1,640
Waste paper of all kinds.....	1,607	1,209	—	—	1,607	1,209
Aluminized and other chemically prepared papers for photographers' use, <i>n.o.p.</i>	4,272	5,195	128	235	3,305	3,648
Cigarette paper.....	1,647	1,516	1	1	1,459	1,365
Cable insulating paper.....	1,606	1,606	44	65	1,525	1,509
Shipping and other containers of paperboard and fibreboard.....	4,411	4,538	89	89	4,253	4,325
Paper, and manufactures of, <i>n.o.p.</i>	24,461	24,565	1,276	1,408	22,592	22,537
Books and Printed Matter—						
Newspapers, magazines, charts, maps, music and photographs.....	39,996	39,570	475	645	38,673	37,947
Printed advertising matter, commercial blank forms, pictorial post cards, and other printed and lithographed matter, <i>n.o.p.</i>	17,264	17,744	824	931	15,659	15,889
Bibles and prayer books, psalm and hymn books, text books, and other books and pamphlets.....	39,620	43,559	3,358	4,076	31,551	33,706
Totals, Wood, Wood Products and Paper.	272,274	266,123	8,312	9,219	236,261	228,589
V. Iron and Its Products						
Iron ore.....	27,129	48,370	—	1	26,009	46,625
Ferro-alloys.....	7,100	8,863	583	609	4,147	4,243
Pigs, ingots, blooms and billets.....	3,445	4,600	59	85	2,734	4,131
Scrap iron.....	23,803	18,598	17	31	23,551	18,563
Castings and forgings.....	12,575	8,465	4,150	1,827	8,257	6,236
Rolling-Mill Products—						
Bars and rods.....	18,925	14,868	2,254	1,913	5,933	6,277
Plates, sheets and strip.....	59,667	61,075	8,120	6,328	45,641	48,985
Structural shapes and sheet piling.....	52,671	57,063	11,358	11,348	28,334	33,858
Rails and railway track material.....	6,068	1,752	257	201	5,709	1,410
Pipes, tubes and fittings.....	55,305	48,405	12,256	11,444	35,145	28,608
Wire.....	20,397	18,491	7,000	6,901	8,417	6,538
Chains.....	6,099	5,698	1,223	1,252	3,964	3,559
Engines, Locomotives and Boilers—						
Engines, diesel and semi-diesel, and parts.....	38,928	28,945	8,506	6,357	29,682	21,314
Engines, internal combustion, for motor trucks, motor buses, fire fighting vehicles, ambulances and hearse, and parts.....	14,099	11,754	361	164	13,682	11,500
Engines, automobile and motor vehicle, and parts, <i>n.o.p.</i>	11,691	14,246	875	784	10,498	12,573

¹ Less than \$500.

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
V. Iron and Its Products—continued						
Engines, Locomotives and Boilers—concluded						
Engines for aircraft, and parts.....	37,280	50,515	17,011	26,109	19,589	24,114
Engines, locomotives and boilers, and parts, n.o.p.....	33,003	35,958	1,050	1,227	31,543	34,237
Farm Implements and Machinery—						
Cream separators and other dairy machinery..	6,828	6,163	208	217	5,571	4,982
Harvesting machinery and implements, n.o.p.	11,517	10,879	72	52	11,113	10,290
Ploughs, drills and other tillage and planting implements.....	15,780	14,845	274	433	15,478	14,354
Harvesters combined with threshing machines, and parts.....	26,979	25,325	58	39	26,898	25,221
Seed separation machinery, n.o.p.....	968	836	—	—	968	836
Hay presses and parts.....	10,339	11,018	81	139	10,117	10,728
Spraying and dusting machines.....	2,028	2,114	60	25	1,934	2,074
Tractors.....	115,224	83,340	11,454	9,704	103,176	72,507
Parts of tractors, and accessories, including parts therefor.....	56,845	48,201	2,903	3,265	53,476	44,344
Farm implements and machinery, and parts, n.o.p.....	27,312	25,938	760	608	26,210	24,879
Hardware and Cutlery—						
Cutlery.....	5,729	5,441	911	1,010	1,693	1,622
Nails, spikes and tacks.....	3,199	2,171	979	523	433	370
Butts, hinges, bolts, nuts, washers, rivets and screws.....	11,561	9,846	1,449	1,184	8,274	7,257
Hardware, n.o.p.....	7,871	7,806	1,351	1,408	5,772	5,711
Machinery (except agricultural)—						
Sewing machines, washing machines, vacuum cleaners and other household machinery....	31,271	28,663	2,106	1,862	25,573	23,590
Ore crushers, rock drills, well-drilling and other mining and metallurgical machinery.....	67,771	65,917	2,769	2,723	63,069	60,352
Office or business machinery.....	36,527	42,017	3,288	3,049	28,024	33,381
Printing and bookbinding machinery.....	36,363	31,928	1,873	2,653	30,546	25,771
Air and gas compressing machinery, n.o.p.....	12,492	12,358	1,324	1,311	10,771	10,617
Bakery machinery and apparatus.....	3,356	3,725	98	103	3,194	3,451
Cranes, hoists and derricks, and parts, n.o.p....	10,663	10,749	800	806	8,817	9,150
Ice-making and refrigerating machinery, n.o.p.	9,704	11,499	298	258	9,385	11,195
Logging machinery.....	9,339	8,559	153	72	9,039	8,287
Metalworking machinery.....	41,120	38,959	4,187	3,995	33,157	31,326
Motion-picture projectors and other equipment for moving pictures.....	4,539	4,630	67	71	3,971	3,867
Paper mill machines, n.o.p.....	6,778	8,314	1,402	2,846	5,243	5,135
Pumps, power, and parts, n.o.p.....	11,747	11,332	1,236	810	10,242	10,139
Concrete road-paving machines and other equipment for road paving.....	8,142	6,124	351	356	7,745	5,768
Sand cast rolls and chilled cast iron rolls, and forged steel rolls.....	4,725	5,143	964	1,290	3,723	3,741
Shovels, power, and parts.....	19,411	10,950	260	178	19,008	10,596
Yarn, cordage and fabric machinery.....	19,933	19,639	3,222	3,641	13,992	13,537
Air-conditioning apparatus.....	13,143	16,567	453	350	12,564	16,089
Bulldozers, earthmovers and parts.....	17,478	13,327	715	850	16,711	12,456
Conveying equipment and parts.....	9,143	6,453	2,970	744	5,394	5,144
Woodworking machinery, and parts, n.o.p.....	8,930	7,617	475	308	7,965	6,799
Machinery and parts, n.o.p.....	202,658	215,322	13,620	13,001	179,017	191,228
Stamped and coated products.....	16,628	14,757	385	377	15,679	13,843
Tools and hand implements.....	36,517	34,279	4,175	4,224	27,375	25,349
Vehicles (see also Miscellaneous Commodities)—						
Automobiles, freight, new.....	29,714	23,219	3,587	3,346	22,873	17,315
Automobiles, passenger, new.....	199,601	220,144	84,626	104,815	62,386	69,638
Automobile parts.....	288,596	296,571	6,008	6,867	279,407	285,343
Factory and warehouse trucks, motor driven, and parts.....	1,440	1,249	51	76	1,389	1,152
Fork lift trucks, and parts.....	12,198	10,438	583	648	11,468	9,737
Railway cars, and parts.....	6,383	4,586	480	182	5,638	4,188
Vehicles, and parts, n.o.p.....	9,176	9,257	3,232	3,760	4,351	4,130
Ball and roller bearings, and parts.....	22,620	22,705	1,576	1,550	17,912	17,052
Bottles, cylinders, drums, barrels and tanks.....	4,468	3,920	147	200	4,297	3,681

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
V. Iron and Its Products—concluded						
Furniture of metal.....	9,792	9,713	243	272	9,356	9,167
Guns, rifles and other firearms.....	6,008	5,145	922	761	4,191	3,427
Scales, balances, weighing beams and parts.....	3,814	4,484	130	209	3,384	3,934
Stoves and other heating and cooking apparatus for electricity, gas, oil, coal, wood or other fuel and parts.....	39,426	33,101	567	963	38,620	31,837
Valves, iron.....	10,912	11,507	1,611	1,105	9,102	10,090
Other iron and steel, and manufactures of.....	79,199	69,849	7,618	5,459	67,850	60,760
Totals, Iron and Its Products.....	2,092,093	2,046,307	254,110	271,276	1,666,356	1,610,213
VI. Non-ferrous Metals and Their Products (except gold)						
Aluminum—						
Bauxite and alumina.....	35,958	45,041	5	3	1,135	1,176
Aluminum, and manufactures of, <i>n.o.p.</i>	26,383	27,073	4,188	3,418	19,525	20,793
Brass—						
Brass valves, plated or not, and parts.....	4,937	4,950	208	202	4,313	4,264
Plumbers' brass goods, plated or not.....	5,727	4,909	186	44	4,595	4,044
Brass, and manufactures of, <i>n.o.p.</i>	16,560	14,065	2,647	1,486	13,036	11,809
Copper, and manufactures of.....	6,583	6,252	1,300	1,249	4,963	4,727
Nickel, and manufactures of.....	5,687	5,708	270	197	5,058	5,082
Precious Metals—						
Electro-plated ware and gilt ware, <i>n.o.p.</i>	14,072	13,398	961	986	11,741	10,900
Platinum crucibles and other manufactures of platinum.....	8,295	14,934	6,238	12,690	2,057	2,244
Precious metals, and manufactures of, <i>n.o.p.</i> ...	3,561	4,591	1,347	447	1,235	3,527
Tin, blocks, pigs, bars or granular form.....	9,182	8,258	1,535	221	2,189	776
Zinc, and manufactures of.....	3,396	3,091	258	259	2,875	2,669
Alloys, <i>n.o.p.</i>	1,955	1,871	805	872	1,053	880
Clocks and watches, and parts.....	11,449	11,730	537	921	2,226	2,304
Electrical Apparatus, <i>n.o.p.</i> —						
Dynamios or generators, and parts, <i>n.o.p.</i>	10,181	9,604	1,734	1,892	7,554	7,170
Electric lamps, lights and fixtures.....	15,625	15,009	128	144	13,527	12,529
Electric motors and parts, <i>n.o.p.</i>	17,455	13,614	3,131	2,727	13,983	10,658
Rheostats, controllers and other starting de- vices.....	13,151	12,758	640	435	12,267	12,021
Switches, switchboards and parts.....	12,799	11,707	1,016	802	10,496	10,073
Telephone apparatus and parts.....	11,728	11,954	3,877	3,311	7,532	8,214
Radio, television tubes.....	7,827	7,804	420	350	6,270	5,643
Radio and wireless apparatus, and parts, <i>n.o.p.</i>	32,778	36,468	6,150	8,818	24,889	26,025
Radio receiving sets.....	11,657	11,852	301	348	2,321	2,219
Radio set parts.....	6,010	5,736	2,042	2,170	3,585	3,313
Radio tube parts.....	7,450	6,751	65	70	7,049	6,357
Electric precision instruments.....	13,314	15,003	1,051	980	11,623	13,305
Electric steam turbo generator sets.....	26,482	15,698	24,733	14,732	1,737	86
Electrical apparatus, <i>n.o.p.</i>	82,944	86,514	4,526	4,950	71,785	74,401
Gas apparatus.....	2,305	2,314	162	298	2,057	1,913
Stereotypes, electrotypes and other printing materials.....	2,724	2,899	44	53	2,609	2,782
Chrome ore and ores of metals, <i>n.o.p.</i>	4,493	6,308	5	2	993	1,759
Manganese ore.....	5,017	2,544	26	13	1,244	613
Buckles, clasps, eyelets, hooks and eyes, dome, snap or other fasteners, of metal, coated or not, <i>n.o.p.</i> (not being jewellery); slide, hook- less, or zipper fasteners.....	2,146	1,980	115	113	1,873	1,730
Articles, <i>n.o.p.</i> , of metal, for ships.....	3,963	3,976	1,232	1,054	2,532	2,684
Wire, non-ferrous, <i>n.o.p.</i>	8,116	8,071	3,180	2,781	4,752	5,341
Other non-ferrous metals, and manufactures of..	19,345	16,686	1,186	1,164	13,962	12,022
Totals, Non-ferrous Metals and Their Products.....	471,253	471,120	76,249	69,699	300,640	296,051

**15.—Principal Imports into Canada for Consumption from All Countries, from
Britain and from the United States, 1959 and 1960—continued**

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
VII. Non-metallic Minerals and Their Products (except chemicals)						
Asbestos, and manufactures of	4,078	4,498	743	1,012	3,083	3,065
Clay, and Manufactures of—						
Clays	5,157	4,871	719	668	4,423	4,196
Bricks and tiles	19,050	18,864	1,591	1,604	16,084	15,699
Pottery and chinaware	16,664	16,300	11,721	11,125	2,427	2,359
Clay manufactures, <i>n.o.p.</i>	7,424	6,813	1,487	1,314	5,195	4,904
Coal, anthracite	17,935	13,577	1,390	964	16,544	12,613
Coal, bituminous, and coal, <i>n.o.p.</i>	66,553	63,383	—	5	66,553	63,378
Coke	10,945	11,234	5	3	10,941	11,230
Coal products, <i>n.o.p.</i>	5,089	7,385	1,828	2,275	3,015	4,202
Glass—						
Tableware, bottles, flasks, lamp bulbs, and other glass, cut, pressed or blown	24,772	25,366	1,359	1,188	20,399	20,840
Plate, sheet and common, colourless window glass	25,884	20,276	5,074	3,714	10,853	7,180
Glass, and manufactures of, <i>n.o.p.</i>	12,317	12,275	993	744	7,892	7,750
Petroleum and Products—						
Petroleum, crude	277,888	283,565	—	—	1,026	961
Fuel oil, <i>n.o.p.</i>	77,821	66,816	405	30	24,553	16,235
Kerosene, <i>n.o.p.</i>	2,346	2,927	—	606	1,673	780
Gasoline	30,260	14,790	—	—	18,657	11,868
Lubricating oils	11,857	12,826	61	76	11,769	12,714
Petroleum greases and lubricating greases, <i>n.o.p.</i>	2,139	2,184	13	14	2,124	2,169
Paraffin wax	2,864	2,585	1	1	2,744	2,545
Petroleum products, <i>n.o.p.</i>	10,436	11,604	15	12	10,075	11,315
Stone—						
Diamond dust and other abrasives	14,383	12,099	1,027	1,033	12,507	10,037
Building and paving stone	1,511	1,488	1	43	1,096	1,002
Lime, plaster and cement	2,944	2,478	285	283	1,807	1,510
Phosphate rock	7,468	8,320	—	—	7,126	8,000
Silica sand	2,525	2,405	—	—	2,487	2,395
Roofing granules	1,788	1,199	—	—	1,788	1,199
Stone, and manufactures of, <i>n.o.p.</i>	7,122	8,288	200	201	5,238	5,368
Diamonds, unset	9,765	8,595	1,324	951	1,474	1,172
Gas for heating, cooking or illuminating, imported by pipeline	3,797	1,634	—	—	3,797	1,634
Salt	1,578	841	28	10	1,186	485
Sulphur and brimstone	6,925	6,629	1	1	6,834	6,627
Other non-metallic minerals, and manufactures of	14,321	16,054	885	1,370	11,470	12,714
Totals, Non-metallic Minerals and Their Products	705,606	672,170	31,151	29,248	296,840	268,146
VIII. Chemicals and Allied Products						
Acids	7,709	7,489	1,174	1,135	5,173	4,901
Alcohols, industrial	1,468	560	—	—	1,468	560
Drugs, medicinal and pharmaceutical preparations	32,428	32,613	3,063	3,334	25,723	25,429
Dyeing and Tanning Materials—						
Coal-tar products	9,278	9,408	1,456	1,222	4,926	5,093
Dyeing and tanning materials, <i>n.o.p.</i>	3,047	2,520	229	201	1,606	1,477
Explosives	1,443	1,951	102	79	1,136	1,730
Fertilizers	12,801	14,225	19	66	11,338	11,835
Pigments, Paints and Varnishes—						
Chemical and mineral earth pigments	17,406	15,148	5,915	5,008	10,626	9,567
Paints and varnishes, <i>n.o.p.</i>	6,178	6,562	570	580	5,511	5,838

¹ Less than \$500.

15.—Principal Imports into Canada for Consumption from All Countries, from Britain and from the United States, 1959 and 1960—continued

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
VIII. Chemicals and Allied Products						
—concluded						
Perfumery, cosmetics and toilet preparations....	2,287	2,705	183	199	1,427	1,723
Soap.....	3,193	2,143	144	146	2,996	1,944
Inorganic Chemicals, <i>n.o.p.</i> —						
Ammonia and its compounds.....	1,061	991	82	83	935	860
Compounds of bromine, chlorine and iodine...	1,630	1,668	2	2	1,544	1,612
Compounds of calcium.....	2,319	2,489	99	145	2,100	2,220
Potash and potassium compounds, <i>n.o.p.</i>	1,772	1,924	202	181	1,268	1,403
Soda and sodium compounds, <i>n.o.p.</i>	15,118	16,848	2,676	2,624	11,383	12,599
Other inorganic chemicals, <i>n.o.p.</i>	2,908	2,972	609	690	2,197	1,758
Chemicals and Allied Products, <i>n.o.p.</i> —						
Glycerine.....	2,046	1,734	—	—	2,015	1,718
Ink, printing, writing and rotogravure.....	1,841	2,076	317	308	1,396	1,604
Butadiene.....	1,695	2,920	—	—	1,695	2,920
Chemicals for synthetic resins.....	15,016	21,420	84	131	13,670	20,117
Plastics and products.....	90,092	97,650	2,987	2,919	82,170	89,363
Other chemicals and allied products, <i>n.o.p.</i>	94,252	90,637	6,332	5,853	82,821	77,453
Totals, Chemicals and Allied Products.....	326,987	338,652	26,216	24,909	275,125	282,723
IX. Miscellaneous Commodities						
Amusement and Sporting Goods, <i>n.o.p.</i> —						
Bagatelle and other game tables and boards...	1,116	989	121	136	933	784
Dolls and toys.....	12,569	12,220	2,028	2,018	5,559	4,865
Films.....	15,900	15,300	2,395	2,442	11,705	10,972
Sportsmen's fishing rods and tackle, <i>n.o.p.</i>	5,030	4,057	311	237	3,396	2,693
Other amusement and sporting goods, <i>n.o.p.</i>	1,311	1,365	187	195	996	1,038
Brushes of all kinds.....	2,014	1,983	478	448	1,109	1,146
Packages and containers, not including contents.	14,309	15,260	4,076	3,942	3,302	3,887
Household and Personal Equipment, <i>n.o.p.</i> —						
Boots, shoes and slippers (except rubber and leather).....	1,938	3,141	333	289	559	430
Buttons of all kinds.....	1,807	1,694	47	47	1,157	1,044
Cases, boxes and writing desks, fancy.....	2,317	1,728	221	147	1,474	1,014
Hearing aids and similar appliances for deaf persons, and parts; electronic equipment and parts for ear-training the deaf.....	2,750	2,806	42	104	2,676	2,651
Jewellery, <i>n.o.p.</i>	5,148	5,250	224	187	2,494	2,346
Pocketbooks, portfolios, purses, reticules, card cases, fly books, and musical instrument cases and parts.....	7,883	9,186	1,010	1,010	4,622	5,361
Refrigerators, electric and other, and parts...	37,917	28,896	3,361	2,643	34,479	26,204
Spectacle and eye-glass frames, and parts for.....	4,053	4,025	11	21	3,627	3,607
Trunks, valises, hat boxes, carpet bags and tool bags.....	2,278	1,913	367	290	1,692	1,378
Other household and personal equipment, <i>n.o.p.</i> ...	4,452	4,397	933	788	1,987	2,103
Musical instruments and parts.....	12,457	12,674	1,089	947	8,660	8,398
Scientific and Educational Equipment—						
Cameras and parts.....	8,736	8,808	44	35	4,722	4,623
Surgical and dental instruments.....	14,286	16,219	529	790	12,292	13,829
Optical, philosophical and mathematical instruments, <i>n.o.p.</i> , and parts.....	5,314	5,059	596	332	3,063	3,072
Other scientific and educational equipment, <i>n.o.p.</i>	27,856	27,855	1,869	1,707	22,892	23,152
Ships and vessels.....	5,626	9,762	378	484	3,949	4,685
Vehicles, <i>n.o.p.</i> (see also Iron)—						
Aircraft and parts, excluding engines and parts.	76,745	116,494	15,964	13,727	59,254	102,284
Other vehicles, <i>n.o.p.</i>	13,220	9,825	186	225	12,903	9,454
Paintings, statues and other works of art.....	4,039	3,752	1,068	991	1,143	1,263
Goods returned within five years after having been exported.....	10,337	24,191	675	878	8,583	20,721

15.—Principal Imports into Canada for Consumption from All Countries, from Britain and from the United States, 1959 and 1960—concluded

Item	All Countries		Britain		United States	
	1959	1960	1959	1960	1959	1960
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
IX. Miscellaneous Commodities—concluded						
Rescue apparatus.....	2,435	2,465	28	22	2,375	2,415
Communion sets, rosaries, articles for religious services.....	1,988	1,939	51	49	581	577
Biological products, animal or vegetable, <i>n.o.p.</i> , for parenteral administration in the diagnosis or treatment of diseases.....	2,418	2,150	162	122	2,246	2,003
Cartridges, metallic and other, and ammunition, <i>n.o.p.</i>	3,809	2,001	180	228	3,370	1,560
Pens, penholders, pencils and rulers.....	3,404	3,207	79	102	2,982	2,784
Precious stones, and imitations of (except diamonds).....	2,474	2,886	293	327	547	695
Shipments under \$50 in value.....	54,614	53,764	1,323	1,285	51,692	50,787
Wax, vegetable and mineral, <i>n.o.p.</i> , and wax and manufactures of, <i>n.o.p.</i>	1,817	1,728	13	10	1,258	1,255
All other articles imported.....	15,630	20,480	914	2,153	12,339	14,154
Totals, Miscellaneous Commodities.....	389,895	439,468	41,588	39,360	296,619	339,232
Grand Totals, Imports.....	5,508,921	5,492,348	588,573	588,930	3,709,065	3,693,189

Section 5.—Exports and Imports by Degree of Manufacture, by Purpose and by Origin

This Section of the Foreign Trade Chapter normally contains tables showing Canada's exports and imports classified according to degree of manufacture, by geographical region and leading countries; according to purpose, by group; and according to origin, by group and degree of manufacture. The latest data available at the time of going to press—that for 1958 and 1959—for the first two classifications are given in the 1961 Year Book, pp. 997-1001. Tables 16 and 17 following give the classification by group and degree of manufacture according to origin for those years.

16.—Exports according to Origin, by Group and Degree of Manufacture, 1958 and 1959

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Farm Origin						
CANADIAN FARM PRODUCTS—¹						
Field Crops—						
Raw materials.....	689,879	246,867	87,023	658,818	234,971	74,904
Partly manufactured.....	10,733	2	5,300	10,944	—	5,397
Fully or chiefly manufactured.....	174,894	36,279	81,633	184,842	43,780	89,596
Totals, Field Crops.....	875,506	283,146	173,956	854,604	278,751	169,897
Animal Husbandry—						
Raw materials.....	168,134	4,451	148,193	111,567	3,650	89,159
Partly manufactured.....	12,306	1,555	6,364	13,914	1,671	7,493
Fully or chiefly manufactured.....	39,310	5,664	12,666	60,701	18,314	14,241
Totals, Animal Husbandry.....	219,751	11,669	167,223	186,183	23,636	110,893

¹For footnotes, see p. 979.

**16.—Exports according to Origin, by Group and Degree of Manufacture,
1958 and 1959—continued**

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
Farm Origin—concluded	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
All Canadian Farm Products—						
Raw materials.....	858,013	251,318	235,215	770,386	238,621	164,063
Partly manufactured.....	23,039	1,555	11,664	24,858	1,671	12,890
Fully or chiefly manufactured.....	214,204	41,943	94,299	245,543	62,094	103,837
TOTALS, CANADIAN FARM PRODUCTS.....	1,095,257	294,815	341,178	1,040,787	302,387	280,790
FOREIGN FARM PRODUCTS—¹						
Field Crops—						
Raw materials.....	15	—	15	6	—	6
Partly manufactured.....	1,075	21	859	1,313	66	878
Fully or chiefly manufactured.....	16,799	294	9,195	21,606	226	12,670
TOTALS, Field Crops.....	17,888	315	10,070	22,925	292	13,554
Animal Husbandry—						
Raw materials.....	—	—	—	—	—	—
Partly manufactured.....	—	—	—	—	—	—
Fully or chiefly manufactured.....	3	—	2	6	—	4
TOTALS, Animal Husbandry.....	3	—	2	6	—	4
All Foreign Farm Products—						
Raw materials.....	15	—	15	6	—	6
Partly manufactured.....	1,075	21	859	1,313	66	878
Fully or chiefly manufactured.....	16,801	294	9,198	21,611	226	12,674
TOTALS, FOREIGN FARM PRODUCTS.....	17,891	315	10,072	22,931	292	13,558
ALL FARM PRODUCTS—¹						
All Field Crops—						
Raw materials.....	689,894	246,867	87,037	658,825	234,971	74,910
Partly manufactured.....	11,808	21	6,159	12,258	66	6,275
Fully or chiefly manufactured.....	191,693	36,573	90,828	206,447	44,006	102,266
TOTALS, All Field Crops.....	893,394	283,461	184,025	877,530	279,043	183,451
All Animal Husbandry—						
Raw materials.....	168,134	4,451	148,193	111,567	3,650	89,159
Partly manufactured.....	12,306	1,555	6,364	13,914	1,671	7,493
Fully or chiefly manufactured.....	39,813	5,664	12,668	60,707	18,314	14,245
TOTALS, All Animal Husbandry.....	219,754	11,669	167,225	186,188	23,636	110,897
All Farm Products—						
Raw materials.....	858,028	251,318	235,230	770,392	238,621	164,069
Partly manufactured.....	24,114	1,576	12,523	26,172	1,737	13,768
Fully or chiefly manufactured.....	231,006	42,237	103,496	267,151	62,320	116,511
TOTALS, Farm Origin.....	1,113,148	295,131	351,250	1,063,718	302,679	294,348
Wildlife Origin						
Raw materials.....	23,382	4,000	18,528	24,164	4,550	18,466
Partly manufactured.....	1,129	239	306	1,379	91	871
Fully or chiefly manufactured.....	538	15	476	640	15	577
TOTALS, Wildlife Origin.....	25,050	4,255	19,309	26,184	4,656	19,914

¹ In this classification the expression "Canadian Farm Products" refers to commodities actually produced, in their original form, on Canadian farms. "Foreign Farm Products" covers materials or commodities Canada does not produce, e.g., cane sugar, tea, rubber, cotton, silk, etc.

² Less than \$500.

**16.—Exports according to Origin, by Group and Degree of Manufacture,
1958 and 1959—concluded**

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Marine Origin						
Raw materials.....	90,765	11	89,326	88,313	297	86,886
Partly manufactured.....	376	68	308	504	66	438
Fully or chiefly manufactured.....	63,117	24,733	13,193	58,337	21,490	11,274
Totals, Marine Origin.....	154,258	24,812	102,827	147,154	21,853	98,598
Forest Origin						
Raw materials.....	48,704	4,752	40,741	44,235	3,719	38,149
Partly manufactured.....	606,808	67,760	487,631	671,616	62,080	552,807
Fully or chiefly manufactured.....	758,573	60,916	634,829	800,199	66,732	666,804
Totals, Forest Origin.....	1,414,085	133,427	1,163,201	1,516,050	132,531	1,257,760
Mineral Origin						
Raw materials.....	676,143	77,305	521,860	778,082	97,306	588,475
Partly manufactured.....	681,686	174,920	342,338	752,830	176,604	390,002
Fully or chiefly manufactured.....	386,384	14,502	197,376	493,227	12,974	325,536
Totals, Mineral Origin.....	1,744,212	266,726	1,061,575	2,024,139	286,884	1,304,012
Mixed Origin						
Raw materials.....	2,424	—	2,424	1,951	—	1,951
Partly manufactured.....	1,342	5	879	1,400	8	1,578
Fully or chiefly manufactured.....	368,828	49,447	125,952	241,077	37,190	105,990
Totals, Mixed Origin.....	372,594	49,452	129,254	244,427	37,199	108,519
Recapitulation						
Raw materials.....	1,699,466	337,385	908,109	1,707,137	344,494	897,995
Partly manufactured.....	1,315,456	244,567	843,985	1,453,901	240,586	958,464
Fully or chiefly manufactured.....	1,808,445	191,851	1,075,322	1,860,634	200,721	1,226,692
Grand Totals.....	4,823,347	773,804	2,827,417	5,021,672	785,802	3,083,151

**17.—Imports according to Origin, by Group and Degree of Manufacture,
1958 and 1959**

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Farm Origin						
CANADIAN FARM PRODUCTS—¹						
Field Crops—						
Raw materials.....	134,976	494	119,037	164,907	603	128,759
Partly manufactured.....	10,151	5	9,371	15,985	59	15,383
Fully or chiefly manufactured.....	89,599	26,079	48,161	92,366	26,260	49,269
Totals, Field Crops.....	234,726	26,578	176,570	273,258	26,921	193,411

¹For footnote, see p. 981.

**17.—Imports according to Origin, by Group and Degree of Manufacture,
1958 and 1959—continued**

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Farm Origin—concluded						
Animal Husbandry—						
Raw materials.....	41,391	2,635	24,042	55,735	2,925	34,901
Partly manufactured.....	29,113	16,660	7,081	33,379	20,046	7,950
Fully or chiefly manufactured.....	103,910	51,140	20,929	110,227	52,629	21,823
Totals, Animal Husbandry.....	174,414	70,435	52,052	199,341	75,601	64,674
All Canadian Farm Products—						
Raw materials.....	176,367	3,129	143,080	220,641	3,528	163,660
Partly manufactured.....	39,264	16,666	16,453	49,364	20,105	23,333
Fully or chiefly manufactured.....	193,508	77,219	69,090	202,593	78,889	71,092
Totals, CANADIAN FARM PRODUCTS.....	409,140	97,014	228,622	472,599	102,522	258,085
FOREIGN FARM PRODUCTS—1						
Field Crops—						
Raw materials.....	222,391	2,009	86,176	202,489	2,164	80,450
Partly manufactured.....	87,477	3,918	13,220	98,741	2,032	27,315
Fully or chiefly manufactured.....	311,648	29,145	167,370	326,721	34,187	169,963
Totals, Field Crops.....	621,515	35,072	266,766	627,951	38,383	277,729
Animal Husbandry—						
Raw materials.....	10,863	3,929	5,656	10,520	3,242	5,768
Partly manufactured.....	40	—	6	46	—	4
Fully or chiefly manufactured.....	13,832	405	9,162	14,279	428	9,103
Totals, Animal Husbandry.....	24,734	4,334	14,824	24,845	3,671	14,874
All Foreign Farm Products—						
Raw materials.....	233,254	5,938	91,832	213,009	5,406	86,218
Partly manufactured.....	87,516	3,918	13,226	98,787	2,032	27,319
Fully or chiefly manufactured.....	325,480	29,550	176,532	341,000	34,615	179,066
Totals, FOREIGN FARM PRODUCTS.....	646,249	39,406	281,589	652,796	42,054	292,603
ALL FARM PRODUCTS—1						
All Field Crops—						
Raw materials.....	357,367	2,503	205,213	367,396	2,767	209,209
Partly manufactured.....	97,628	3,924	22,591	114,726	2,091	42,698
Fully or chiefly manufactured.....	401,247	55,224	215,531	419,087	60,447	219,232
Totals, All Field Crops.....	856,241	61,651	443,335	901,209	65,304	471,139
All Animal Husbandry—						
Raw materials.....	52,254	6,564	29,698	66,254	6,168	40,668
Partly manufactured.....	29,152	16,660	7,087	33,426	20,046	7,954
Fully or chiefly manufactured.....	117,741	51,545	30,090	124,506	53,058	30,926
Totals, All Animal Husbandry.....	199,148	74,770	66,876	224,186	79,271	79,549
All Farm Products—						
Raw materials.....	409,621	9,067	234,912	433,650	8,934	249,877
Partly manufactured.....	126,780	20,584	29,678	148,152	22,138	50,652
Fully or chiefly manufactured.....	518,988	106,769	245,621	543,593	113,504	250,158
Totals, Farm Origin.....	1,055,389	136,421	510,211	1,125,395	144,576	550,688

¹ In this classification the expression "Canadian Farm Products" refers to commodities of which the basic raw materials are such as Canadian farms produce. "Foreign Farm Products" covers materials or commodities Canada does not produce, e.g., cane sugar, tea, rubber, cotton, silk, etc.

**17.—Imports according to Origin, by Group and Degree of Manufacture,
1958 and 1959—concluded**

Origin	1958			1959		
	All Countries	Britain	United States	All Countries	Britain	United States
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Wildlife Origin						
Raw materials.....	10,804	835	8,214	11,603	1,060	8,676
Partly manufactured.....	3,053	372	2,267	3,039	257	2,587
Fully or chiefly manufactured.....	632	37	558	823	38	700
Totals, Wildlife Origin.....	14,488	1,244	11,040	15,465	1,355	11,963
Marine Origin						
Raw materials.....	5,704	18	4,500	6,821	25	4,548
Partly manufactured.....	—	—	—	—	—	—
Fully or chiefly manufactured.....	12,771	680	5,003	11,022	741	4,725
Totals, Marine Origin.....	18,475	698	9,503	17,843	766	9,273
Forest Origin						
Raw materials.....	10,571	—	10,485	12,341	—	12,250
Partly manufactured.....	48,874	206	41,876	68,362	578	56,651
Fully or chiefly manufactured.....	180,443	7,887	157,349	196,362	7,758	171,219
Totals, Forest Origin.....	239,888	8,092	209,710	277,065	8,336	240,119
Mineral Origin						
Raw materials.....	467,416	1,995	150,170	470,103	2,350	143,143
Partly manufactured.....	65,242	11,618	42,810	85,328	11,527	61,934
Fully or chiefly manufactured.....	2,506,338	297,353	1,961,279	2,792,434	360,186	2,112,516
Totals, Mineral Origin.....	3,038,995	310,965	2,154,260	3,347,865	374,063	2,317,592
Mixed Origin						
Raw materials.....	553	—	545	644	—	567
Partly manufactured.....	7,635	510	6,454	6,994	343	6,086
Fully or chiefly manufactured.....	816,927	68,720	670,656	717,649	59,134	572,776
Totals, Mixed Origin.....	825,115	69,230	677,655	725,288	59,477	579,429
Recapitulation						
Raw materials.....	904,670	11,915	408,825	935,163	12,369	419,062
Partly manufactured.....	251,583	33,289	123,086	311,875	34,843	177,910
Fully or chiefly manufactured.....	4,036,098	481,446	3,040,468	4,261,883	541,360	3,112,093
Grand Totals.....	5,192,351	526,650	3,572,379	5,508,921	588,573	3,709,065

Section 6.—Comparison of Value, Price and Volume of Foreign Trade

In recent years there has been a substantial increase in the value of Canada's exports and imports. Changes in the value of trade, however, are the joint product of changes in the volume of goods traded and in the prices at which transactions are conducted. To assess the significance of value changes, it is desirable to isolate the contributions made to them by the price and volume factors.

Special indexes of export and import prices have been developed to provide this information. These indexes are based chiefly on unit values (average prices) calculated from the trade statistics, supplemented by information on wholesale and retail prices. Price relatives are calculated for a sample of commodities representing the greater part of export and import trade, and these relatives are weighted by the percentage of 1948 trade represented by each commodity in the sample in obtaining group and total indexes. By dividing these price indexes into the trade values the effects of price change are removed from the values, or by dividing the price index into an index of values on the same time-base an index is obtained showing changes in the volume of trade from year to year.

The grouping of commodities used in these calculations differs slightly from that of the regular trade statistics, the changes being desirable to simplify the pricing problem. The chief differences are that the first two main groups of the trade statistics have been combined into one group, "agricultural and animal products", and that the sub-group "rubber and its products" has been transferred from this group to the "miscellaneous" group. The declared values of domestic exports and imports have been revised to cover the adjustment for "Special Transactions—Non-Trade". An explanation of that adjustment is contained in Part II of this Chapter, p. 949. Table 18 shows the revised values of trade adjusted for pricing purposes and the value, price and volume indexes of Canadian trade for 1958-61.

18.—Declared Values, and Value, Price and Physical Volume Indexes of Foreign Trade, by Commodity Group, 1958-61

Commodity Group ¹	1958	1959	1960	1961
DECLARED VALUES				
	\$'000	\$'000	\$'000	\$'000
Domestic Exports	4,791,436	5,021,672	5,255,575	5,755,513
Agricultural and animal products.....	1,275,150	1,212,381	1,142,428	1,433,262
Fibres and textiles.....	20,660	26,803	40,518	44,661
Wood products and paper.....	1,413,989	1,515,962	1,591,919	1,639,343
Iron and steel and products.....	450,572	574,453	605,960	601,737
Non-ferrous metals and products.....	1,023,607	1,114,784	1,213,999	1,209,545
Non-metallic minerals and products.....	250,351	294,235	339,569	430,519
Chemicals and fertilizer.....	197,051	201,729	237,687	248,326
Miscellaneous.....	160,056	81,324	83,495	148,119
Imports	5,050,492	5,508,921	5,482,695	5,771,033
Agricultural and animal products.....	716,314	733,062	737,710	788,394
Fibres and textiles.....	387,357	425,470	431,975	458,488
Wood products and paper.....	226,912	263,203	256,701	277,124
Iron and steel and products.....	1,844,480	2,086,064	2,046,258	2,019,603
Non-ferrous metals and products.....	442,795	479,231	476,633	524,191
Non-metallic minerals and products.....	676,000	698,138	660,749	671,324
Chemicals and fertilizer.....	297,212	334,455	346,972	380,855
Miscellaneous.....	459,423	489,299	525,698	651,054
VALUE INDEXES (1948=100)				
Domestic Exports	157.3	161.8	172.5	188.9
Agricultural and animal products.....	122.0	116.1	109.3	137.1
Fibres and textiles.....	45.4	56.6	88.9	98.0
Wood products and paper.....	148.3	159.0	166.9	171.9
Iron and steel and products.....	124.2	158.3	167.0	165.8
Non-ferrous metals and products.....	262.2	285.6	311.0	309.9
Non-metallic minerals and products.....	263.8	310.0	357.8	453.6
Chemicals and fertilizer.....	246.8	252.7	297.7	311.0
Miscellaneous.....	217.0	110.9	113.2	200.8
Imports	192.9	210.4	209.4	220.4
Agricultural and animal products.....	177.7	182.2	183.4	196.0
Fibres and textiles.....	110.5	120.9	122.8	130.3
Wood products and paper.....	321.6	373.1	363.9	392.9
Iron and steel and products.....	235.4	266.3	261.2	257.8
Non-ferrous metals and products.....	283.1	307.2	305.6	336.0
Non-metallic minerals and products.....	112.1	115.7	109.5	111.3
Chemicals and fertilizer.....	245.0	275.7	286.1	314.0
Miscellaneous.....	354.2	377.4	405.5	502.2

¹For footnote, see end of table, p. 934.

**18.—Declared Values, and Value, Price and Physical Volume Indexes of Foreign Trade,
by Commodity Group, 1958-61—concluded**

Commodity Group ¹	1958	1959	1960	1961
PRICE INDEXES (1948=100)				
Domestic Exports	120.6	122.8	123.0	124.2
Agricultural and animal products.....	96.6	99.8	99.6	101.9
Fibres and textiles.....	108.0	107.8	110.5	111.5
Wood products and paper.....	119.3	120.2	118.5	116.0
Iron and steel and products.....	157.1	161.7	162.8	167.1
Non-ferrous metals and products.....	143.6	145.6	148.8	152.4
Non-metallic minerals and products.....	165.3	165.0	165.3	169.2
Chemicals and fertilizer.....	114.5	114.8	115.3	114.2
Miscellaneous.....	128.8	128.9	133.9	131.6
Imports	116.5	114.4	115.5	119.2
Agricultural and animal products.....	100.3	91.3	91.1	95.4
Fibres and textiles.....	86.6	82.3	85.0	89.0
Wood products and paper.....	138.7	139.7	142.2	144.8
Iron and steel and products.....	143.1	144.2	142.5	153.4
Non-ferrous metals and products.....	132.8	135.1	138.3	141.3
Non-metallic minerals and products.....	106.5	101.8	98.6	101.0
Chemicals and fertilizer.....	112.7	110.9	111.9	116.4
Miscellaneous.....	106.9	116.3	125.7	114.8
VOLUME INDEXES (1948=100)				
Domestic Exports	130.4	134.2	140.2	152.1
Agricultural and animal products.....	126.3	116.3	109.7	134.5
Fibres and textiles.....	42.0	52.5	80.5	87.8
Wood products and paper.....	124.3	132.3	140.8	148.2
Iron and steel and products.....	79.1	97.9	102.6	99.2
Non-ferrous metals and products.....	182.6	196.2	209.0	203.3
Non-metallic minerals and products.....	159.6	187.9	216.5	268.1
Chemicals and fertilizer.....	215.5	220.1	258.2	272.3
Miscellaneous.....	168.5	86.0	84.5	152.6
Imports	165.6	183.9	181.3	184.9
Agricultural and animal products.....	177.2	199.6	201.3	205.5
Fibres and textiles.....	127.6	146.9	141.6	146.4
Wood products and paper.....	231.9	267.1	255.9	271.3
Iron and steel and products.....	164.5	184.7	178.3	168.1
Non-ferrous metals and products.....	213.2	227.4	221.0	237.8
Non-metallic minerals and products.....	105.3	113.7	111.0	110.2
Chemicals and fertilizer.....	217.4	248.6	255.7	269.8
Miscellaneous.....	331.3	324.5	322.6	437.5

¹ The groups, though classified by component material, differ slightly from conventional groups (see text, pp. 982-983).

PART III.—THE GOVERNMENT AND FOREIGN TRADE

Section 1.—Foreign Trade Service and Associated Agencies concerned with the Development of Foreign Trade*

Foreign trade contributes substantially to the welfare and prosperity of Canadians, largely because the productive capacity of Canada is greater than the ability of its population to consume the output of farms, factories, forests, fisheries and mines. Every effort is made, therefore, to establish and maintain close commercial relations with other countries whose markets are essential to the Canadian economy. It is appreciated, however, that two-way trade should be encouraged in order that goods and services may be accepted in partial payment for the products Canada is in a position to export. Furthermore, many commodities that are not indigenous to this country must be imported. Some

* Prepared in the several branches concerned and collated in the Trade Publicity Branch, Department of Trade and Commerce, Ottawa. The work of the Small Business Branch, the Industrial Promotion Branch, the National Design Branch, the Depreciation Certification Division and the Standards Branch of the Department, which are concerned with domestic matters, is dealt with in the Domestic Trade Chapter, pp. 914-916.

of these are required for industrial processes and others may be classed as consumer goods necessary for the maintenance of the Canadian standard of living.

Although many private firms have established connections in other countries that enable them to maintain a steady flow of goods in either direction, others require the assistance of government agencies in finding markets or sources of supply. Import and export controls imposed by many countries for a variety of reasons, together with postwar foreign exchange difficulties, present problems that no single firm or even an association of manufacturers, exporters or importers can solve without assistance from government representatives.

The Department of Trade and Commerce and associated agencies are at the disposal of exporters and importers engaged directly in the development of Canada's commercial relations with other countries. Services obtainable from the various branches, divisions and agencies are described below.

Agriculture and Fisheries Branch.—The main activities of the Agriculture and Fisheries Branch are directed toward trade promotion of agricultural and fisheries products in world markets. The Branch has four commodity Divisions—a Grain Division, a Fisheries Division, a Livestock and Animal Products Division and a Plant Products Division—each of which is staffed with specialists in their respective fields. The Grain Division, since the transfer of the Canadian Wheat Board to the jurisdiction of the Minister of Agriculture, has operated as a 'joint unit', being responsible to the Minister of Agriculture on domestic matters and to the Minister of Trade and Commerce on trade matters. A close working relationship is maintained with other Branches of the Department of Trade and Commerce, with producers and processors, with industry associations and provincial marketing boards, and with other government departments, both federal and provincial.

The Department's trade fair program provides an excellent medium for the introduction and promotion of agricultural and fisheries products in foreign markets. Branch officers organize and co-ordinate participation in these exhibits and are also active in organizing trade missions to a number of countries and in arranging for visiting agricultural missions to Canada. Such missions have proved to be a valuable means of stimulating exports of Canadian products. As a basis for export promotion, studies of foreign markets and special surveys are carried out for various segments of the agriculture export industry. Considerable emphasis is placed on assisting export firms in locating markets for their products and Canadian Trade Commissioners are kept informed of the supply situation for various products, of prices and of other related details to assist them in assessing market potential in their areas.

Branch officers participate in activities relating to international commodity agreements and foreign agricultural policy problems as they relate to trade. The Branch Director is the departmental representative on the Interdepartmental FAO Committee and the Branch provides a chairman and secretary for the Canadian Fur Council. Delegates were also provided for 1961 meetings of the International Sugar Council and the International Coffee Study Group.

In addition to direct trade promotion activity, the Branch reviews and disseminates information on foreign agriculture and fisheries. This information, received from officers of the Trade Commissioner Service, is collated and distributed to the Departments of Agriculture and Fisheries, the Canadian Wheat Board and other interested government departments and boards, as well as to the agricultural industry.

Canadian Government Exhibition Commission.—The Canadian Government Exhibition Commission is responsible for the planning, organization and administration of all Canadian exhibits in fairs and exhibitions abroad. In addition, the Commission endeavours to advise private exhibitors and their agents on the best means of displaying Canadian products at overseas fairs. The Commission is also responsible for any international fairs and exhibitions held in Canada, financed and sponsored by the Federal Government.

Commodities Branch.—The principal role of the Commodities Branch is active trade promotion. The Branch provides liaison with industry and the business community in Canada, and passes on information about trade opportunities brought to light by officers of the Department at home and abroad.

The Branch has commodity specialists organized in seven divisions: Engineering and Equipment, Minerals and Metals, Forest Products, Chemicals, Appliances and Commercial Machinery, Textiles and Consumer Goods, and Transportation and Trade Services. Within these divisions, individual commodity specialists are concerned with such particular groups of products as engineering services and plant equipment, electrical and electronic equipment and transportation equipment, ferrous and non-ferrous metals, lumber, pulp and paper, chemicals and petroleum products and leather and rubber, as well as a wide range of consumer products. Commodity officers visit plants, attend meetings of business associations, prepare trade studies and market surveys, and assist in arranging displays of Canadian goods abroad for the purpose of introducing them in foreign markets. Commodity specialists direct the attention of trade commissioners to changes in supply conditions and to products available for export, and also relay market news received from trade commissioners to Canadian manufacturers and exporters.

The Branch is concerned with the administration of the Export and Import Permits Act and is active in the export control field, including international arrangements for the control of strategic materials. Branch representatives attend international commodity study groups in such products as tin, rubber, cotton, lead and zinc, where major world suppliers and users of the commodity concerned meet to arrange a framework for orderly marketing and price stability in principal world markets. The Branch also acts as a source of commercial intelligence and compiles and distributes trade information essential to the operation of other branches of the Department.

Export Credits Insurance Corporation.—The Export Credits Insurance Corporation was established under the provisions of the Export Credits Insurance Act 1944 (RSC 1952, c. 105, as amended by 1953-54, 1957, 1957-58, 1959, 1960-61 and 1962), and is administered by a Board of Directors that includes the Deputy Minister of Trade and Commerce and the Deputy Minister of Finance. It insures persons carrying on business in Canada against risks involved in the export, manufacture, treatment or distribution of goods or the rendering of engineering, construction, technical or similar services. The main risks covered include: insolvency or protracted default on the part of the buyer; exchange restrictions in the buyer's country preventing the transfer of funds to Canada; cancellation of an import licence or the imposition of restrictions on the importation of goods not previously subject to restrictions; the occurrence of war between the buyer's country and Canada, or of war, revolution, etc., in the buyer's country.

The insurance is available under three main classifications: general commodities, capital goods and services. Coverage for general commodities may be procured by exporters under two types of policies: the Contracts Policy, which insures an exporter against loss from the time he books the order until payment is received; or the Shipments Policy, obtainable at lower rates of premium and covering the exporter from the time of shipment until payment is received. These policies are issued on a yearly basis, covering exporters' sales to all countries.

Insurance of capital goods offers protection to exporters dealing in plant equipment, heavy machinery, etc., where extended credit up to a maximum of five years may be necessary. Specific policies are issued for transactions involving capital goods, but the general terms and conditions are the same as those applicable to policies for general commodities. Specific policies are also issued to cover engineering, construction, technical or similar service contracts entered into between Canadian firms and persons in foreign countries who have agreed to purchase such services.

The Corporation insures exporters on a co-insurance basis up to a maximum of 85 p.c. of the gross invoice value of shipments. This co-insurance basis also operates in the

distribution of recoveries obtained after payment of a loss; these recoveries are shared by the Corporation and the exporter in the proportions of 85 p.c. and 15 p.c., respectively.

Under the Export Credits Insurance Act, Sect. 21, the Corporation may be authorized by the Government to enter into certain contracts of insurance, where the Board of Directors of the Corporation is of opinion that a proposed contract of insurance would impose upon the Corporation a liability for a term or in an amount in excess of that which the Corporation would normally undertake, and in the opinion of the Minister of Trade and Commerce it is in the national interest that the proposed contract be entered into. Under Sect. 21A of the Act, the Corporation may be authorized by the Government to provide financing in respect of an export transaction. Such financing is available only in cases where extended credit terms in excess of five years are involved.

International Trade Relations Branch.—The International Trade Relations Branch deals with a wide variety of current trade issues including analysis of developments in international commercial relations and assistance in maintaining and further improving the access for Canadian goods in foreign markets. The Branch endeavours to find practical solutions for tariffs and other difficulties encountered by Canadian exporters. It has under constant review Canada's trading relations with other countries, and participates in conferences and negotiations under the General Agreement on Tariffs and Trade. In addition, the Branch is concerned with work being done in the trade field by other international organizations.

The Branch has a major responsibility for the administration of Canada's existing trade agreements and is responsible for the preparation of material for trade and tariff negotiations with other countries. Information is maintained on foreign tariffs, customs legislation, taxes affecting trade, import licensing, exchange regulations, documentation, sanitary regulations, marking and labelling requirements, and measures pertaining to quotas, embargoes, and other import restrictions. This information is made available to exporters, government officials and others interested in these regulations as they affect Canadian export trade. The assistance of the Branch is available to exporters in dealing with difficulties resulting from the trade policies or regulations of other countries.

Trade Publicity Branch.—The principal function of the Trade Publicity Branch is to promote trade between Canada and other countries in the publicity field. It furnishes the commercial community of Canada with information concerning the assistance that exporters and importers may obtain from the Department of Trade and Commerce. The Branch is responsible also for stimulating a better appreciation by the general public of the importance of trade to the welfare of Canada. The attention of exporters and potential exporters is directed to opportunities for the disposal of their products in markets abroad, and of importers to sources of supply for raw materials and consumer goods unobtainable in Canada.

Its principal information medium is *Foreign Trade*, fortnightly publication of the Foreign Trade Service, in which are reproduced reports by Canadian trade commissioners on conditions in their respective territories, articles by Head Office personnel, commodity notes, foreign exchange rates, the itineraries of trade commissioners on tour in Canada, and trade and tariff regulations. A list of trade offices throughout the world is published once a month, and a directory of Head Office at periodic intervals.

Press releases are prepared and distributed to newspapers, trade publications, trade associations, chambers of commerce and individuals to whom this information may be of assistance at home, and material of a similar character is dispatched to Canadian trade commissioners for distribution to newspapers abroad. Pamphlets and brochures are prepared to supplement other information on foreign markets, sources of supply, documentation, regulations and trade restrictions. Assistance is rendered to correspondents of newspapers and periodicals at home and abroad in the preparation of articles pertaining to various phases of Canada's foreign trade. The promotional work of this Branch is supported by moderate advertising at home and abroad through the daily press, periodicals and trade papers, and by films and radio.

Trade promotion, through the medium of trade fairs in other lands, is the responsibility of a Division in this Branch, which maintains close liaison with other branches of the Department and agencies of government and prepares information for consideration by the Committee on Trade Fairs Abroad.

Trade Commissioner Service.—The Trade Commissioner Service is the overseas arm of the Department and is actively engaged in the promotion of Canadian trade and the protection of Canada's commercial interests; 65 offices are maintained in 47 countries.

The prime function of the trade commissioners is to stimulate Canada's export trade. In so doing, every effort is made to bring Canadian exporters and prospective buyers together. On their own initiative, and in response to requests from the Department and Canadian businessmen, they study potential markets for specific Canadian commodities and services. Reports are provided on the demand in the country concerned, prices, competition, trade and exchange regulations, tariffs, shipping and packaging requirements, credit terms, channels of distribution, labelling regulations, etc. Inquiries from local businessmen for goods obtainable from Canada are forwarded to the Department in Ottawa, or directly to Canadian firms in a position to supply the products required.

The supervision of Canadian exhibits at overseas trade fairs and the provision of assistance to participating Canadian firms is an important function of many offices. Trade commissioners make local arrangements for and travel with Canadian trade missions visiting overseas markets. They also seek sources of supply for a wide variety of goods on behalf of Canadian importers.

In developing trade opportunities, Canada's trade commissioners travel extensively in their territories, visit leading industrial and commercial centres, and call on government officials, businessmen, trade associations and municipal authorities in an effort to arouse interest in Canadian products. They establish social contacts with commercial interests, thereby developing goodwill for Canada and Canadian products, while creating connections for Canadian exporters and facilitating the collection of trade information. They return to Canada at periodic intervals and make tours of Canadian industrial and commercial centres. Such direct contacts enable them to discuss specific problems with businessmen and bring into focus the Canadian commercial scene. Trade commissioners report to the Department and advise Canadian firms on economic conditions and trade opportunities in their respective territories. Many reports are published in *Foreign Trade*, and provide Canadian businessmen with a wealth of commercial intelligence.

In countries where Canada has a diplomatic mission, the Canadian trade office is the commercial division and the trade commissioner has the rank of Minister (Commercial), Minister-Counsellor (Economic), Commercial Counsellor or Commercial Secretary. When attached to a consulate, he carries the title of Deputy Consul General (Commercial), Consul (Commercial), or Vice-Consul (Commercial), according to his rank, in addition to that of Trade Commissioner. He may also be the Consul General, in charge of the office. Where trade offices are detached, and do not form part of a diplomatic mission, the trade commissioner may also be required to undertake consular, immigration and other duties as the sole representative of Canada.

CANADIAN FOREIGN TRADE OFFICES ABROAD, AS AT MAR. 1, 1962

ARGENTINA.—Commercial Secretary, Canadian Embassy, Bartolome Mitre 478, Buenos Aires. Territory includes Paraguay.

AUSTRALIA.—

Sydney: Commercial Counsellor for Canada, 21st Floor A.M.P. Bldg., Sydney Cove, N.S.W.
Mail: P.O. Box 3952 G.P.O.

Melbourne: Commercial Counsellor for Canada, Mobile Centre, 2 City Road, South Melbourne.
Canberra: Commercial Counsellor, Office of the High Commissioner for Canada, State Circle, Canberra.

AUSTRIA.—Commercial Counsellor for Canada, Opernringhof, Opernring 1, Vienna 1. Territory includes Albania, Bulgaria, Czechoslovakia, Hungary, Romania and Yugoslavia.

BELGIUM.—Commercial Counsellor, Canadian Embassy, 35 rue de la Science, Brussels 4. Territory includes Luxembourg.

BRAZIL.—

Rio de Janeiro: Commercial Counsellor, Canadian Embassy, Edificio Metropole, Av. Presidente Wilson 165, Rio de Janeiro. Mail: Caixa Postal 2164.

São Paulo: Consul and Trade Commissioner, Canadian Consulate, Edificio Alois, Rue 7 de Abril 252, São Paulo. Mail: Caixa Postal 6034.

BRITAIN.—

London: Minister (Commercial), Office of the High Commissioner for Canada, One Grosvenor Square, London W.1.

Liverpool: Canadian Government Trade Commissioner, Martins Bank Bldg., Water Street, Liverpool.

Glasgow: Canadian Government Trade Commissioner, Cornhill House, 144 West George St., Glasgow C.2, Scotland.

Belfast: Canadian Government Trade Commissioner, 15/17 Chichester St., Belfast 1, Northern Ireland.

CEYLON.—Commercial Secretary (absent), Office of the High Commissioner for Canada, 6 Gregory's Road, Cinnamon Gardens, Colombo. Mail: P.O. Box 1006.

CHILE.—Commercial Secretary, Canadian Embassy, 5th Floor, Agustinas 1225, Santiago. Mail: Casilla 771.

COLOMBIA.—Commercial Secretary and Consul, Canadian Embassy, Edificio Banco de Los Andes, Carrera 10, No. 16-92, Bogota. Airmail: Apartado Aereo 8582. Surface Mail: Apartado 1618. Territory includes Ecuador.

CONGO.—Consul General, Canadian Consulate General, C.C.C.I. Bldg., Boulevard Albert 1^{er}, Leopoldville 1. Mail: Boîte Postale 8341. Territory includes Angola, Central African Republic, Chad, Gabon and Congo (Community).

CUBA.—Commercial Counsellor, Canadian Embassy, Edificio Ingenieros Civiles, Calle 17 y 0 Vedado, Havana. Mail: Gaveta 6125.

DENMARK.—Commercial Counsellor, Canadian Embassy, Prinsesse Maries Allé 2, Copenhagen V. Territory includes Greenland and Poland.

DOMINICAN REPUBLIC.—Commercial Counsellor, Canadian Embassy, Edificio Copello 408, Calle El Conde, Santo Domingo. Mail: Apartado 1393. Territory includes Puerto Rico.

FRANCE.—Commercial Counsellor, Canadian Embassy, 35 Ave. Montaigne, Paris 8^e. Territory includes Algeria, Cameroon Republic, Dahomey, Guinea, Ivory Coast, Mali Republic, Mauritania, Morocco, Niger, Senegal, Togoland and Upper Volta.

GERMANY.—

Bonn: Commercial Counsellor, Canadian Embassy, 22 Zitellmannstrasse, Bonn.

Duesseldorf: Consul, Canadian Consulate, Bismarckstrasse 95, Duesseldorf. Mail: P.O. Box 2102.

Hamburg: Consul General, Canadian Consulate General, 69 Ferdinandstrasse, Hamburg.

GHANA.—Commercial Secretary, Office of the High Commissioner for Canada, E115/3 Independence Ave., Accra. Mail: P.O. Box 1639. Territory includes Gambia, Liberia and Sierra Leone.

GREECE.—Commercial Counsellor, Canadian Embassy, 31 Vassilissis Sophias Ave., Athens. Territory includes Cyprus and Turkey.

GUATEMALA.—Commercial Secretary, Canadian Embassy, 5a Avenida 11-70, Zone 1, Guatemala City, C.A. Airmail: P.O. Box 400. Surface mail: P.O. Box 444. Territory includes Costa Rica, El Salvador, Honduras, Nicaragua, Panama and Canal Zone.

HAITI.—Charge d'Affaires *ad interim* and Consul, Canadian Embassy, Route du Canape Vert, St. Louis de Turgeau, Port-au-Prince. Mail: P.O. Box 826.

HONG KONG.—Canadian Government Trade Commissioner, Hong Kong and Shanghai Banking Corporation Bldg., Hong Kong. Mail: P.O. Box 126. Territory includes Cambodia, Communist China, Laos, Viet Nam and Macao.

INDIA.—

New Delhi: Commercial Counsellor, Office of the High Commissioner for Canada, 13 Golf Links Area, New Delhi 1. Mail: P.O. Box 11. Territory includes Bhutan, Nepal and Sikkim.

Bombay: Canadian Government Trade Commissioner, Gresham Assurance House, Mint Road, Bombay. Mail: P.O. Box 886.

INDONESIA.—Commercial Division, Canadian Embassy, Djl. Budi Kemuliaan No. 6, Djakarta.

IRAN.—Commercial Counsellor, Canadian Embassy, Bezrouke Bldg., Corner of Takht Jamshid Ave. and Forsat St., Tehran. Mail: P.O. Box 1610.

IRELAND.—Commercial Secretary for Canada, 66 Upper O'Connell St., Dublin.

ISRAEL.—Commercial Secretary for Canada, 35 Carlebach St., Tel Aviv. Mail: P.O. Box 20140.

ITALY.—Commercial Counsellor, Canadian Embassy, Via G.B. De Rossi 27, Rome. Territory includes Libya and Malta.

JAPAN.—Commercial Counsellor, Canadian Embassy, Tokyo. Territory includes Korea and Okinawa.

LEBANON.—Commercial Counsellor, Canadian Embassy, Alpha Bldg., Rue Clemenceau, Beirut. Mail: Boîte Postale 2300. Territory includes Iraq, Jordan, Persian Gulf Area and Syria.

MEXICO.—Commercial Counsellor, Canadian Embassy, Melchor Ocampo, 463, 7th Floor, Mexico 5, D.F. Mail: Apartado 25364.

NETHERLANDS.—Commercial Counsellor, Canadian Embassy, Sophialaan 5-7, The Hague.

NEW ZEALAND.—Commercial Counsellor, Office of the High Commissioner for Canada, Government Life Insurance Bldg., Wellington. Mail: P.O. Box 1660. Territory includes Fiji, Samoa, Tahiti and Tonga.

NIGERIA.—Commercial Counsellor, Office of the High Commissioner for Canada, 4th Floor Barclays Bank Bldg., 40 Marina Road, Lagos. Mail: P.O. Box 851.

NORWAY.—Commercial Counsellor, Canadian Embassy, Fridtjof Nansens Plass 5, Oslo. Mail: P.O. Box 1379—Vika. Territory includes Iceland.

PAKISTAN.—Commercial Secretary, Office of the High Commissioner for Canada, Hotel Metro-pole, Victoria Road, Karachi. Mail: P.O. Box 3703. Territory includes Afghanistan.

PERU.—Commercial Secretary, Canadian Embassy, Edificio Boza, Carabaya 831, Plaza San Martin, Lima. Mail: Casilla 1212. Territory includes Bolivia.

PHILIPPINES.—Consul General and Trade Commissioner, Canadian Consulate General, L & S Bldg., 3rd Floor, 1414 Dewey Blvd., Manila. Mail: P.O. Box 1825. Territory includes Republic of China (Taiwan).

PORTUGAL.—Commercial Counsellor, Canadian Embassy, Rua Marques de Fronteira, No. 8-4°D°, Lisbon. Territory includes Azores, Cape Verde Islands, Madeira and Portuguese Guinea.

RHODESIA AND NYASALAND, FEDERATION OF.—Canadian Government Trade Commissioner, 8th Floor, Grindlays Bank Chambers, Baker Ave., Salisbury. Mail: P.O. Box 2133. Territory includes Kenya, Seychelles Islands, Tanganyika, Uganda and Zanzibar.

SINGAPORE.—Canadian Government Trade Commissioner, American International Bldg., Robinson Road and Telegraph St., Singapore. Mail: P.O. Box 845. Territory includes Brunei, Burma, Federation of Malaya, North Borneo, Sarawak and Thailand.

SOUTH AFRICA.—

Johannesburg: Canadian Government Trade Commissioner, Mobil House, 17th Floor, Corner Rissik and De Villiers Sts., Johannesburg. Mail: P.O. Box 715. Territory includes Mauritius, Mozambique, Reunion and Malagasy.

Cape Town: Canadian Government Trade Commissioner, 602 Norwich House, The Foreshore, Cape Town. Mail: P.O. Box 683. Territory includes St. Helena and South West Africa.

SPAIN.—Commercial Counsellor, Canadian Embassy, Edificio España, Avenida de Jose Antonio 88, Madrid. Mail: Apartado 117. Territory includes Balearic Islands, Canary Islands, Gibraltar, Rio Muni and Rio de Oro.

SWEDEN.—Commercial Counsellor, Canadian Embassy, Strandvagen, 7-C, Stockholm. Mail: P.O. Box 14042. Territory includes Finland.

SWITZERLAND.—Commercial Counsellor, Canadian Embassy, Kirchenfeldstrasse 88, Berne. Territory includes Tunisia.

UNION OF SOVIET SOCIALIST REPUBLICS.—Commercial Counsellor, Canadian Embassy, 23 Starokonyushenny Pereulok, Moscow.

UNITED ARAB REPUBLIC.—Commercial Counsellor, Canadian Embassy, 6 Sharia Rouston Pasha, Garden City, Cairo. Mail: Kasr el Doubara Post Office. Territory includes Aden, Sudan, Ethiopia, Saudi Arabia and Yemen.

UNITED STATES.—

Washington: Minister-Counsellor (Economic), Canadian Embassy, 1746 Massachusetts Ave., N.W., Washington 6, D.C.

New York City: Deputy Consul General (Commercial), Canadian Consulate General, 680 Fifth Ave., New York City 19. Territory includes Bermuda.

Boston: Consul and Trade Commissioner, Canadian Consulate General, 607 Boylston St., Boston 16.

Chicago: Consul and Trade Commissioner, Canadian Consulate General, 111 North Wabash Ave., Chicago.

Detroit: Consul and Trade Commissioner, Canadian Consulate, 1139 Penobscot Bldg., Detroit 26.

Los Angeles: Consul and Trade Commissioner, Canadian Consulate General, 510 West Sixth St., Los Angeles 14.

New Orleans: Consul and Trade Commissioner, Canadian Consulate General, 215-217 International Trade Mart, New Orleans 12.

Philadelphia: Consul and Trade Commissioner, Canadian Consulate, 3 Penn Center Plaza, Philadelphia 2.

San Francisco: Consul General, Canadian Consulate General, 3rd Floor, Kohl Bldg., 400 Montgomery St., San Francisco 4.

Seattle: Consul General, Canadian Consulate General, The Tower Bldg., Seventh Ave. at Olive Way, Seattle 1.

URUGUAY.—Commercial Division, Canadian Embassy, No. 1409 Avenida Agraciada, Piso 7°, Montevideo. Mail: Casilla Postal 852. Territory includes Falkland Islands.

VENEZUELA.—Commercial Counsellor, Canadian Embassy, Avenida La Estancia No. 10, Ciudad Comercial Tamanaco, Caracas. Mail: Apartado 11452-Este. Territory includes Netherlands Antilles.

WEST INDIES.—

Port-of-Spain: Commercial Counsellor, Office of the High Commissioner for Canada, Colonial Bldg., 72 South Quay, Port-of-Spain, Trinidad. Mail: P.O. Box 125. Territory includes Barbados, Trinidad and Tobago, Windward and Leeward Islands, British Guiana, French Guiana, Surinam, Guadeloupe and Martinique.

Kingston: Canadian Government Trade Commissioner, Barelays Bank Bldg., King Street, Kingston, Jamaica. Mail: P.O. Box 225. Territory includes Bahamas and British Honduras.

Section 2.—The National Energy Board*

The National Energy Board was established by the National Energy Board Act, 1959 (SC 1959, c. 46) for the broad purpose of assuring the best use of energy resources in Canada. The Board is responsible for the regulation in the public interest of the construction and operation of oil and gas pipelines subject to the jurisdiction of the Parliament of Canada, the tolls charged for transmission by such pipelines, the export and import of gas, the export of electric power and the construction of those lines over which such power is exported. The Board is also required to study and keep under review all matters relating to energy within the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary or advisable in the public interest with regard to such matters. The Act also authorizes the extension of the export and import provisions to

* Prepared from the report of the National Energy Board for the year ended Dec. 31, 1961.

oil upon proclamation by the Governor in Council. The Board, which reports to the Minister of Trade and Commerce, consists of a Chairman, a Vice-Chairman and three other members.

The Act was given Royal Assent on July 18, 1959, the members were appointed by Order in Council on Aug. 10, 1959 and the Act came into force by proclamation on Nov. 2, 1959. The Act supersedes the Pipe Lines Act, formerly administered by the Board of Transport Commissioners for Canada, and the Exportation of Power and Fluids and Importation of Gas Act, formerly administered by the Standards Branch of the Department of Trade and Commerce. Provision was made in the new Act for the continuation or re-definition of authorizations issued under the two previous Acts, and in 1960 the Act was amended to extend to Dec. 31, 1961 the duration of licences to export power issued under the Exportation of Power and Fluids and Importation of Gas Act unless earlier replaced by a licence issued under the National Energy Board Act.

Whereas the most prominent activity of the Board during its first full year of operation (1960) was the processing and disposition of the backlog of applications for licences to export large quantities of natural gas and the completion of the issuance of certificates for power export facilities already in use when the Board came into existence (see the 1961 Year Book, pp. 1022-1023), the major preoccupations of the Board during 1961 were the implementation of the National Oil Policy (announced by the Minister of Trade and Commerce on Feb. 1, 1961) and the processing of applications for renewal or issuance of licences to export electrical power and energy.

As stated at p. 480, the National Oil Policy sought the co-operation of the oil industry in achieving a series of target levels of Canadian production of oil and natural gas liquids to attain an average daily output of 640,000 bbl. for 1961 and 800,000 bbl. per day in 1963. These targets were to be achieved by the increased use of Canadian oil in domestic markets west of the Ottawa Valley and by some expansion of export sales, largely in existing markets which could be reached through established pipelines. Under the policy, importers of crude oil and petroleum products were required to report their imports to the National Energy Board which, in turn, was required to evaluate the contribution of individual companies to the production targets and to report periodically on the progress and development of the program. At Dec. 31, 1961, the Board's assessment of the achievement of the target levels of production gave substantial weight to the increases in exports of oil and to the facts that importation into Ontario of foreign crudes (with the exception of minor quantities of specialty crudes) had been eliminated, that direct imports of products into the target area of Ontario were reduced by 40 p.c. in 1961, and that transfers of products from Montreal into that area were reduced by 5 p.c. The co-operation by the industry was further manifested by the projected construction by mid-1963 of additional Ontario refinery capacity of some 55,000 bbl. per day.

During 1961, the Board issued 16 licences, valid for periods ranging from one to five years, to the following eight utilities and companies: the B.C. Electric Company, the Canadian Niagara Power Company, the Southern Canada Power Company, the Cedars Rapids Transmission Company, the Ontario-Minnesota Pulp and Paper Company, The Hydro-Electric Power Commission of Ontario, the New Brunswick Electric Power Commission, and the Maine and New Brunswick Electric Power Company. In addition, the Board dealt with four minor exports.

In respect of oil pipelines, during 1961 the Board conducted three public hearings on applications as a result of which certificates were issued for the construction of oil pipeline facilities: that of Matador Pipe Line Company, Ltd. to construct and operate an 8-inch oil pipeline of some 54 miles in length from a point on the international boundary 12 miles east of the Manitoba-Saskatchewan border to a point near Cromer, Man., where it will connect with the facilities of the Interprovincial pipeline, thereby enabling North Dakota oil to move by pipeline, rather than by rail, to markets in the United States; that of Interprovincial Pipe Line Company to construct and operate a 12½-inch pipeline from its facilities near Westover, Ont., some 64 miles in length to a point on the international

boundary near Chippawa, Ont., for the purpose of exporting Canadian crude oil to refineries in the vicinity of Buffalo, N.Y.; and that of Aurora Pipe Line Company to construct and operate an 8½-inch oil pipeline of one-half mile in length from a point near Carway, Alta., to a point on the Canada-United States boundary.

In respect of gas pipelines, the Board held two public hearings as a result of which certificates were issued for the construction and operation of gas pipeline facilities: that of Trans-Canada Pipe Lines Limited for additional facilities to its existing pipeline system; and that of Westcoast Transmission Company Limited for a one-mile 16-inch pipeline in the Boundary Lake gas field in Alberta and British Columbia.

The Board approved three applications for licences for the export of natural gas: that of Canadian-Montana Pipe Line Company to alter the time of expiry and increase the maximum quantities of gas permitted to be exported; that of Texaco Exploration Company to export various grade butanes aggregating 15,120,000 gal. through the facilities of Trans Mountain Oil Pipe Line Company to Anacortes, Wash., for a period of 12 months; and that of Shell Oil Company of Canada, Limited, to export field grades of butanes aggregating 260,000 bbl. to Anacortes for a like period.

During the year, the Board concerned itself also with requirements of the National Energy Board Act respecting the protection of the public safety, such as those providing for control of crossings by pipelines of various other utilities and vice versa, and those providing that no pipeline shall be opened for the transmission of hydrocarbons without leave of the Board. Under the former, 226 crossing orders were processed. Under the latter, 14 applications were reviewed as to adequacy of pipeline testing and safety devices; these applications represented some 113 miles of new and relocated pipelines, approximately 52,000 additional horsepower for gas compression and approximately 20,000 additional horsepower for pumping of liquid hydrocarbons. Forty-five other orders were issued on applications received under other sections of the Act.

Pursuant to its obligations to keep under review certain matters relating to energy, the Board continued the preparation of detailed energy supply and demand forecasts. In co-operation with the Dominion Coal Board a study of the interrelationship between coal and oil in Quebec and the Atlantic Provinces was undertaken. Because of the importance of comprehensive statistics on energy, the National Energy Board, in co-operation with the Dominion Bureau of Statistics, sponsored the formation of an Interdepartmental Advisory Committee on Energy Statistics, which has representation from the various government departments interested in the energy field. This Committee, formed in the latter part of 1961, has established liaison with agencies of the provincial governments and of industry working in the energy field, and is directing its efforts toward the establishment of improved statistical series on energy.

The Board has participated in the work of the Emergency Measures Organization in association with the Emergency Supply Planning Branch of the Department of Defence Production, and has strengthened its liaison with international organizations such as the Organization for Economic Co-operation and Development. Close liaison has been maintained with the Department of Northern Affairs and National Resources on problems associated with the disposal of the Canol Pipeline facilities. Also, as a result of investigations into two pipeline failures that occurred on the system of Trans-Canada Pipe Lines Limited, a more extensive study of pipeline steels and pipe fabrication procedures has been initiated in co-operation with the Department of Mines and Technical Surveys.

Section 3.—The Development of Tariffs

Limitations of space in the Year Book have made it necessary, in regard to tariffs, to adopt the policy of confining any detail regarding commodities and countries to tariff relationships in force at present and to summarize as much as possible historical data and details of preceding tariffs, giving references to those editions of the Year Book where extended treatments may be found.

Subsection 1.—The Canadian Tariff Structure*

The Canadian Tariff consists, in the main, of three sets of tariff rates—British Preferential, Most-Favoured-Nation, and General.

British Preferential Tariff rates are, with some exceptions, the lowest rates. They are applied to imported commodities from British countries, with the exception of Hong Kong, when conveyed without trans-shipment from a port of any British country enjoying the benefits of the British Preferential Tariff into a port of Canada. Some Commonwealth countries have trade agreements with Canada which provide for rates of duty, on certain specified goods, lower than the British Preferential rates.

Most-Favoured-Nation rates are usually higher than the British Preferential rates and lower than the General Tariff rates. They are applied to commodities imported from countries with which Canada has trade agreements. These rates would apply to British countries when they are lower than the British Preferential Tariff rates. The most important trade agreement concerning the effective rates applied to goods imported from countries entitled to Most-Favoured-Nation rates is the General Agreement on Tariffs and Trade (GATT).

General Tariff rates are applied to goods imported from the few countries with which Canada has not made trade agreements.

There are numerous goods which are duty free under the British Preferential Tariff, or under both the British Preferential and Most-Favoured-Nation Tariffs, or under all Tariffs.

Valuation.—In general, the Customs Act, as amended effective Sept. 6, 1958, provides that the value for duty of imported goods shall be the fair market value of like goods as established in the home market of the exporter at the time when and place from which the goods are shipped directly to Canada when sold "(a) to purchasers located at that place with whom the vendor deals at arm's length and who are at the same or substantially the same trade level as the importer, and (b) in the same or substantially the same quantities for home consumption in the ordinary course of trade under competitive conditions". In cases where like goods are not sold for home consumption but similar goods are sold, the value for duty shall be the cost of production of the goods imported plus an amount for gross profit at least equal in percentage to that earned on the sale of similar goods in the country of export. The value for duty may, in no case, be less than the amount for which the goods were sold to the purchaser in Canada, exclusive of all charges thereon after their shipment from the country of export. Internal taxes in the country of export (when not incurred on exported goods), the cost of shipping goods to Canada and similar charges do not normally form part of the value for duty. There are, of course, further provisions for determining value for duty under the Act.

Dumping.—Sect. 6 of the Customs Tariff provides that when the actual selling price of goods being imported is less than the fair market value and the goods are of a class or kind made or produced in Canada, a special or dumping duty shall be collected. This duty is to be equal to the difference between the actual selling price and the fair market value of the goods, except that it may not be more than 50 p.c. *ad valorem*. These provisions are designed to offset the advantage foreign exporters may achieve by exporting to Canada at less than the going prices.

Drawback.—There are provisions in the Customs and Excise Tax Acts for the repayment of a portion of the duty, sales and/or excise taxes paid on imported goods used in the manufacture of products later exported. The purpose of these drawbacks (as these repayments are called) is to assist Canadian manufacturers to compete in foreign markets with foreign producers of similar goods. A second class of drawback, known as "home

* Information relating to rate of duty and value for duty is available from the Department of National Revenue, Customs and Excise Division, which administers the Customs Act and the Customs Tariff Act.

consumption" drawbacks, is provided for under the Customs Tariff Act and applies to imported materials and/or parts used in the production of specified goods to be consumed in Canada.

The Tariff Board.—The organization and functions of the Tariff Board are described at p. 100 of this volume.

Subsection 2.—Tariff and Trade Arrangements with Other Countries as at Dec. 31, 1961

Canada's tariff arrangements with other countries fall into three main categories: trade agreements with a number of Commonwealth countries; the General Agreement on Tariffs and Trade (GATT); and other agreements and arrangements.

The Commonwealth countries with which Canada has trade agreements are as follows: Australia; the West Indies and the Bahamas, Bermuda, British Guiana and British Honduras; New Zealand; Federation of Rhodesia and Nyasaland; and Britain and Colonies. Preferences are accorded by Canada to India, Pakistan, Ghana, Nigeria and Tanganyika. Tariff relations between Canada and Ceylon, Ghana, the Federation of Malaya, Cyprus and Sierra Leone are governed by the Canada-United Kingdom Agreement. These agreements and arrangements have been modified and supplemented by GATT.

Canada exchanges most-favoured-nation treatment with 40 countries under the General Agreement on Tariffs and Trade. These countries are shown in the list on pp. 997-1004. In addition, Switzerland and Tunisia have acceded provisionally, and arrangements were being made for Argentina's provisional accession. At the end of the year Cambodia, Israel, Portugal and Spain were expected to become full contracting parties in the near future. Poland and Yugoslavia also participate in the work of the GATT. The protocol of Provisional Application of the General Agreement on Tariffs and Trade was signed by Canada on Oct. 30, 1947 and brought the Agreement into force on Jan. 1, 1948.

GATT is a multilateral trade agreement providing for scheduled tariff concessions and the exchange of most-favoured-nation treatment among the contracting parties and laying down rules and regulations to govern the conduct of international trade. Under the system of multilateral tariff negotiations initiated under GATT, four general rounds of negotiations have taken place: at Geneva, Switzerland, in 1947; at Annecy, France, in 1949; at Torquay, England, in 1950-51; and again at Geneva in 1955-56. A fifth tariff conference opened in Geneva on Sept. 1, 1960.* The tariff concessions Canada granted and received at the first Geneva Conference are described in the 1948-49 Year Book, pp. 875-877, and those negotiated at Annecy are discussed in the 1950 Year Book, pp. 968-970. The Torquay negotiations are discussed in the 1952-53 edition, pp. 996-997.

Canada already had most-favoured-nation trade agreements with a number of GATT members prior to the effective date of the General Agreement. These agreements with individual countries continue in force in conjunction with the General Agreement. As an exception, however, the Canada-U.S. Trade Agreement of 1938 is suspended for as long as both countries continue to be contracting parties to GATT.

Other arrangements include trade agreements with the Republic of Ireland and the Republic of South Africa exchanging preferences and most-favoured-nation agreements, and other arrangements of a less formal nature with many countries not contracting parties to GATT.

* This conference, ended on July 16, 1962, included negotiations concerning European Common Market rates of the 'Six' (Belgium, France, Germany, Italy, Luxembourg and the Netherlands) whose national tariffs are being aligned with the Common Market Tariff over a transition period scheduled to be implemented by Dec. 31, 1969. When these tariff concessions come into force, the national tariffs of the member states of this European Economic Community will be adjusted to the basis of the negotiated concessions. As a result of these negotiations, the Minister of Trade and Commerce stated that Canada had obtained assurances with respect to its rights of access to the European Common Market (EEC) covering fisheries products, wood and wood products, base metals, minerals and chemicals, and other miscellaneous products totalling nearly \$250,000,000 of Canadian trade and, in addition, assurances regarding the access of Canadian wheat and certain other agricultural items to the said Market pending the working out of the agricultural tariff policy of the EEC.

**Tariff and Trade Arrangements with Commonwealth Countries as at
Dec. 31, 1961**

Country	Agreement	Principal Terms
AUSTRALIA.....	Trade Agreement signed Feb. 12, 1960; in force June 30, 1960. GATT effective Jan. 1, 1948.	Agreement includes schedules of tariff rates and exchange of British preferential rates on items not scheduled. May be terminated on six months notice.
BRITAIN.....	Trade Agreement signed Feb. 23, 1937, effective Sept. 1, 1937; modified by exchanges of letters Nov. 16, 1938 and Oct. 30, 1947. GATT effective Jan. 1, 1948.	Various concessions are granted by each country including exchange of preferential tariff rates. The Agreement (as modified) includes provisions relating to the Colonies, Dependencies and Trusteeships.
BRITISH CARIBBEAN: THE WEST INDIES (BARBADOS, LEEWARD ISLANDS, TRINIDAD AND TOBAGO), BAHAMAS, BERMUDA, BRITISH GUIANA, BRITISH HONDURAS AND JAMAICA.	Trade Agreement signed July 6, 1925, in force Apr. 30, 1927; Canadian notice of termination of Nov. 23, 1938, was replaced by notice of Dec. 27, 1939, which continued the Agreement. The British West Indies, Bermuda, British Guiana and British Honduras participate in GATT.	The parties exchange specified tariff preferences. Agreement may be terminated on six months notice.
CEYLON.....	Relations continue to be governed by the Trade Agreement of 1937 between Canada and Britain. GATT effective July 29, 1948.	Canada and Ceylon exchange preferential tariff treatment. Exchange of most-favoured-nation treatment.
CYPRUS	Relations continue to be governed by Trade Agreement of 1937 with Britain.	Canada exchanges preferential treatment with Cyprus.
GHANA.....	Relations continue to be governed by the Trade Agreement of 1937 between Canada and Britain. GATT effective Oct. 18, 1957.	Canada grants Ghana the British preferential rates, except on cocoa beans.
INDIA.....	Since 1897 Canada has unilaterally accorded British preferential treatment to India but without contractual obligation. GATT effective July 8, 1948.	In addition to preferences granted to India, most-favoured-nation treatment is exchanged under GATT.
MALAYA, FEDERATION OF...	Relations continue to be governed by the Trade Agreement of 1937 between Canada and Britain. GATT effective Oct. 24, 1957.	Canada grants Malaya British preferential rates in return for such preferences as exist in the Malayan tariff.
NEW ZEALAND.....	Trade Agreement signed Apr. 23, 1932; in force May 24, 1932. GATT effective July 26, 1948.	The parties exchange specific preferences on scheduled goods and reciprocally concede British preferential rates on items not scheduled. May be terminated on six months notice.
NIGERIA, FEDERATION OF...	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 1, 1960.	Canada accords British preferential treatment to Nigeria. Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Commonwealth Countries as at
Dec. 31, 1961—concluded**

Country	Agreement	Principal Terms
PAKISTAN.....	Canada unilaterally accords Pakistan British preferential treatment but without contractual obligation. GATT effective July 30, 1948.	In addition to preferences granted to Pakistan, most-favoured-nation treatment is exchanged under GATT.
RHODESIA AND NYASALAND, FEDERATION OF.	Trade Agreement signed Feb. 6, 1958; in force Feb. 7, 1958. GATT effective in Southern Rhodesia May 19, 1948; extended to whole Federation, Oct. 29, 1954.	Canada exchanges preferential treatment with the Federation of Rhodesia and Nyasaland.
SIERRA LEONE.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Apr. 27, 1961.	Canada and Sierra Leone exchange preferential tariff treatment.
TANGANYIKA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Dec. 9, 1961.	Canada accords British preferential treatment to Tanganyika. Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961**

ARGENTINA.....	Trade Agreement signed Oct. 2, 1941; provisionally in force Nov. 15, 1941.	Exchange of most-favoured-nation treatment. Provisional application may be terminated on three months notice.
AUSTRIA.....	GATT effective Oct. 19, 1951.	Exchange of most-favoured-nation treatment.
BELGIUM-LUXEMBOURG....	Convention of Commerce with Belgium-Luxembourg Economic Union (including Belgian colonies) entered into effect Oct. 22, 1924. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BOLIVIA.....	Order in Council of July 20, 1935, accepted Article 15 of Britain-Bolivia Treaty of Commerce of Aug. 1, 1911.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
BRAZIL.....	Trade Agreement signed Oct. 17, 1941; provisionally in force from date of signing and definitively on Apr. 16, 1943. GATT effective July 31, 1948.	Exchange of most-favoured-nation treatment.
BURMA.....	GATT effective July 29, 1948.	Exchange of most-favoured-nation treatment.
CAMBODIA.....	Franco-Canadian Trade Agreement of 1933 applied to Cambodia.	Since the creation of Cambodia as an independent state in 1955, Canada has continued to grant most-favoured-nation rates.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
CAMEROUN.....	Franco-Canadian Trade Agreement of 1933 applied to Camerouns.	Since the creation of Cameroun as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
CENTRAL AFRICAN REPUBLIC.	Franco-Canadian Trade Agreement of 1933 applied to Central African Republic.	Since the creation of the Central African Republic as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
CHAD.....	Franco-Canadian Trade Agreement of 1933 applied to Chad.	Since the creation of Chad as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
CHILE.....	Trade Agreement signed Sept. 10, 1941; provisionally in force Oct. 15, 1941, and definitively on Oct. 29, 1943. GATT effective Mar. 16, 1948.	Exchange of most-favoured-nation treatment.
CHINA.....	<i>Modus vivendi</i> signed Sept. 26, 1946; in effect since Sept. 28, 1946.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
COLOMBIA.....	Treaty of Commerce with Britain of Feb. 16, 1866, applies to Canada. Modified by protocol of Aug. 20, 1912, and exchange of notes Dec. 30, 1938. A Trade Agreement between Colombia and Canada was signed Feb. 20, 1946, but has not been put into force.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
CONGO, REPUBLIC OF (BRAZZAVILLE).	Franco-Canadian Trade Agreement of 1933 applied to Congo (Brazzaville).	Since the creation of Congo (Brazzaville) as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
CONGO, REPUBLIC OF (LEOPOLDVILLE).	Belgo-Canadian Convention of Commerce of 1924 applied to the Congo.	Since the Congo's independence in 1960, Canada has continued to grant most-favoured-nation rates.
COSTA RICA.....	<i>Modus vivendi</i> signed Nov. 18, 1950; brought into force Jan. 26, 1951.	Exchange of most-favoured-nation treatment. May be terminated on three months notice
CUBA.....	GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment (excluding preferences accorded by Cuba to the United States).
CZECHOSLOVAKIA.....	Convention of Commerce signed Mar. 15, 1928; in force Nov. 14, 1928. GATT effective May 21, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
DAHOMEY.....	Franco-Canadian Trade Agreement of 1933 applied to Dahomey.	Since the creation of Dahomey as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
DENMARK (including GREENLAND).	Treaties of Peace and Commerce with Britain of Feb. 13, 1660 and July 11, 1670, apply to Canada. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment. Declaration of May 9, 1912 provides means for separate termination by Dominions on one years notice.
DOMINICAN REPUBLIC.....	Trade Agreement signed Mar. 8, 1940; in force provisionally Mar. 15, 1940, and definitively Jan. 22, 1941. GATT effective May 19, 1950.	Exchange of most-favoured-nation treatment including scheduled concessions.
ECUADOR.....	<i>Modus vivendi</i> signed Nov. 10, 1950; in force Dec. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
EGYPT.....	(See United Arab Republic)	
EL SALVADOR.....	Exchange of notes of Nov. 2, 1937; in force Nov. 17, 1937.	Exchange of most-favoured-nation treatment. May be terminated on four months notice.
ETHIOPIA.....	Exchange of notes effective June 3, 1955.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
FINLAND.....	Exchange of notes of Nov. 13-17, 1948; effective Nov. 17, 1948. GATT effective May 25, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
FRANCE AND FRENCH OVERSEAS TERRITORIES.	Trade Agreement signed May 12, 1933; in force June 10, 1933. Exchange of notes of Sept. 29, 1934, and additional protocol of Feb. 26, 1935. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment including scheduled concessions. May be terminated on three months notice.
GABON.....	Franco-Canadian Trade Agreement of 1933 applied to Gabon.	Since the creation of Gabon as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
GERMANY, FEDERAL REPUBLIC OF.	GATT effective Oct. 1, 1951.	Exchange of most-favoured-nation treatment.
GREECE.....	<i>Modus vivendi</i> by exchange of notes of July 24-28, 1947; effective Aug. 28, 1947. GATT effective Mar. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
GREENLAND.....	(See Denmark)	
GUATEMALA.....	Trade Agreement signed Sept. 28, 1937; in force Jan. 14, 1939.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
GUINEA.....	Franco-Canadian Trade Agreement of 1933 applied to Guinea.	Since the creation of Guinea as an independent state in 1958, Canada has continued to grant most-favoured-nation rates.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
HAITI.....	Trade Agreement signed Apr. 23, 1937; in force Jan. 10, 1939. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment.
HONDURAS.....	Exchange of notes signed July 11, 1956, effective July 18, 1956. Ratified in Honduras Sept. 5, 1956.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
ICELAND.....	Although there is no contractual obligation, Canada and Iceland adhere to the terms of a treaty originally concluded between Denmark and Britain on Feb. 13, 1660.	Exchange of most-favoured-nation treatment.
INDONESIA.....	GATT effective Mar. 1, 1948.	Exchange of most-favoured-nation treatment.
IRAN.....	Special arrangement by Order in Council effective Feb. 1, 1951.	Canada grants most-favoured-nation tariff rates as long as Iran accords reciprocal treatment. Iran accorded most-favoured-nation treatment from Sept. 5, 1956.
IRAQ.....	Special arrangement by Order in Council effective Sept. 15, 1951.	Canada grants and receives most-favoured-nation tariff rates.
IRELAND.....	Trade Agreement signed Aug. 20, 1932; in force Jan. 2, 1933.	Canada grants British preferential tariff in return for preferential rates where such exist and for most-favoured-nation rates on non-preferential items. May be terminated on six months notice.
ISRAEL.....	Canada-Britain Agreement of 1937 applied under the British Palestine Mandate.	Since the creation of the State of Israel in May 1948, Canada has continued to grant most-favoured-nation rates.
ITALY.....	<i>Modus vivendi</i> by exchange of notes of Apr. 23-28, 1948; effective Apr. 28, 1948. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
IVORY COAST.....	Franco-Canadian Trade Agreement of 1933 applied to the Ivory Coast.	Since the creation of the Ivory Coast as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
JAPAN.....	Agreement on Commerce signed Mar. 31, 1954; effective June 7, 1954. GATT effective Sept. 10, 1955.	Exchange of most-favoured-nation treatment. Remains in force for one year from ratification and thereafter unless terminated on three months notice.
LAOS.....	Franco-Canadian Trade Agreement of 1933 applied to Laos.	Since the creation of Laos as an independent state in 1955, Canada has continued to grant most-favoured-nation rates.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
LEBANON.....	Special arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Lebanon accords reciprocal treatment.
LIBERIA.....	Special arrangement by Order in Council effective Mar. 1, 1955.	Canada grants most-favoured-nation tariff rates as long as Liberia accords reciprocal treatment.
LIECHTENSTEIN.....	(See Switzerland)	
LUXEMBOURG.....	(See Belgium)	
MALAGASY REPUBLIC.....	Franco-Canadian Trade Agreement of 1933 applied to Malagasy Republic.	Since the creation of Malagasy Republic as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
MALI, FEDERATION OF.....	Franco-Canadian Trade Agreement of 1933 applied to Mali.	Since the creation of Mali as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
MAURITANIA.....	Franco-Canadian Trade Agreement of 1933 applied to Mauritania.	Since the creation of Mauritania as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
MEXICO.....	Trade Agreement signed Feb. 8, 1946; in force provisionally same date. Ratifications exchanged on May 6, 1947; definitively in force 30 days from that date.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
MOROCCO.....	Various agreements applied to French, Spanish and International Zones of Morocco.	Since the creation of Morocco as an independent state in 1956, Canada has continued to grant most-favoured-nation rates.
NETHERLANDS.....	Convention of Commerce of July 11, 1924. Suspended during war; reinstated by exchange of notes Feb. 1 and 5, 1946. Includes Netherlands Antilles and Surinam. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.
NICARAGUA.....	Trade Agreement signed Dec. 19, 1946; in force provisionally same date. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment.
NIGER.....	Franco-Canadian Trade Agreement of 1933 applied to Niger.	Since the creation of Niger as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
NORWAY.....	Convention of Commerce and Navigation with Britain of Mar. 18, 1826, applied to Canada. GATT effective July 10, 1948.	Exchange of most-favoured-nation treatment. Convention of May 16, 1913 provides means for separate termination by Dominions on one years notice.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
PANAMA.....	Order in Council of July 20, 1935, accepted Article 12 of Britain-Panama Treaty of Commerce of Sept. 25, 1928. Treaty terminated in 1942.	While contractual obligation has expired, Canada and Panama continue to exchange most-favoured-nation treatment.
PARAGUAY.....	Exchange of notes of May 21, 1940; in force June 21, 1940.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
PERU.....	GATT effective Oct. 8, 1951.	Exchange of most-favoured-nation treatment.
PHILIPPINES.....	No agreement at present.	Canada and Philippines, without contractual obligation, exchange most-favoured-nation treatment (excluding preferences accorded by the Philippines to the United States).
POLAND.....	Convention of Commerce signed July 3, 1935, in force Aug. 15, 1936.	Exchange of most-favoured-nation treatment including scheduled reductions. May be terminated on three months notice.
PORTUGAL, PORTUGUESE ADJACENT ISLANDS AND PORTUGUESE OVERSEAS PROVINCES.	Trade Agreement signed May 28, 1954 provisionally in effect July 1, 1954, definitively in force on ratification Apr. 29, 1955.	Exchange of most-favoured-nation treatment. Remains in effect for two years from ratification and thereafter unless terminated on three months notice.
SENEGAL.....	Franco-Canadian Trade Agreement of 1933 applied to Senegal.	Since the creation of Senegal as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
SOUTH AFRICA.....	Trade Agreement signed Aug. 20, 1932; in force Oct. 13, 1932.	Exchange of British preferential rates on scheduled items. May be terminated on six months notice.
	Exchange of notes Aug. 2-31, 1935; effective retroactively from July 1, 1935. GATT effective June 14, 1948.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
SPAIN AND SPANISH POSSESSIONS.	Since Aug. 1, 1928, Canada has adhered to Britain-Spain Treaty of Commerce of Oct. 31, 1922.	Exchange of most-favoured-nation treatment. May be terminated on six months notice.
	Trade Agreement signed May 26, 1954, provisionally in effect July 1, 1954, definitively in force on ratification June 30, 1955.	Supplements and amends Britain-Spain Treaty of Commerce. Remains in effect for three years from ratification, and thereafter unless terminated on three months notice.
SWEDEN.....	Britain-Sweden Convention of Commerce and Navigation of Mar. 18, 1826, applies to Canada. GATT effective May 1, 1950.	Exchange of most-favoured-nation treatment. Declaration of Nov. 27, 1911 provides means for separate termination by Dominions on one years notice.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—continued**

Country	Agreement	Principal Terms
SWITZERLAND.....	Britain-Switzerland Treaty of Friendship, Commerce and Reciprocal Establishment of Sept. 6, 1855, applies to Canada. By exchange of notes Liechtenstein included under terms of this Agreement, effective July 14, 1947. Switzerland has acceded to GATT provisionally.	Exchange of most-favoured-nation treatment. Convention of Mar. 30, 1914, provides means for separate termination by the Dominions on one years notice.
SYRIAN ARAB REPUBLIC....	Special Arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Syria accords reciprocal treatment.
TOGOLAND.....	Franco-Canadian Trade Agreement of 1933 applied to Togoland.	Since the creation of Togoland as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
TUNISIA.....	Franco-Canadian Trade Agreement of 1933 applied to Tunisia. Tunisia has acceded to GATT provisionally.	Since the creation of Tunisia as an independent state in 1956, Canada has continued to grant most-favoured-nation rates.
TURKEY.....	Exchange of notes signed Mar. 1, 1948; in effect Mar. 15, 1948. GATT effective Oct. 17, 1951.	Exchange of most-favoured-nation treatment. May be terminated on three months notice.
UNION OF SOVIET SOCIALIST REPUBLICS.	Trade Agreement signed Feb. 29, 1956; renewed Apr. 18, 1960. Ratifications exchanged Sept. 16, 1960.	Exchange of most-favoured-nation treatment and undertaking by U.S.S.R. to purchase from Canada twice as much as their sales to Canada up to \$25,000,000 annually. At least half of Soviet purchases are to be in wheat. In force for three years from date of signature and may thereafter be extended by mutual agreement.
UNITED ARAB REPUBLIC....	Exchange of notes Nov. 26 and Dec. 3, 1952; in force Dec. 3, 1952.	Exchange of most-favoured-nation rates. May be terminated on six months notice.
UNITED STATES.....	Trade Agreement signed Nov. 17, 1938; suspended as long as both countries continue to be contracting parties to GATT. GATT effective Jan. 1, 1948.	Most - favoured - nation treatment exchanged under 1938 Agreement is continued under GATT.
UPPER VOLTA (VOLTAIC REPUBLIC).	Franco-Canadian Trade Agreement of 1933 applied to Upper Volta.	Since the creation of Upper Volta as an independent state in 1960, Canada has continued to grant most-favoured-nation rates.
URUGUAY.....	Trade Agreement signed Aug. 12, 1936; in force May 15, 1940. Additional protocol signed Oct. 19, 1953. GATT effective Dec. 16, 1953.	Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at
Dec. 31, 1961—concluded**

Country	Agreement	Principal Terms
VENEZUELA.....	<i>Modus vivendi</i> signed and brought into force Oct. 11, 1950.	Exchange of most-favoured-nation treatment. Made for one year subject to annual renewal.
VIET NAM.....	Franco-Canadian Trade Agreement of 1933 applied to Viet Nam.	Since the creation of Viet Nam as an independent state in 1956, Canada has continued to accord most-favoured-nation rates.
YUGOSLAVIA.....	Trade Agreements Act of June 11, 1928, accepted Article 30 of Britain - Serb - Croat - Slovene Treaty of Commerce and Navigation of May 12, 1927; in force Aug. 9, 1928.	Exchange of most-favoured-nation treatment. May be terminated on one years notice.

PART IV.—TRAVEL BETWEEN CANADA AND OTHER COUNTRIES*

Canada continues to be a popular attraction to residents of other countries. During 1961 a record 30,500,000 visits to Canada by persons residing in the United States represented an increase of close to 3 p.c. over the volume in 1960. On the other hand, Canadians made 29,300,000 trips to the United States, an insignificant increase over 1960. At the same time, re-entries of Canadian travellers from journeys to overseas countries in 1961 registered a gain of 18 p.c. over the previous year.

Preliminary estimates for 1961 indicate that \$1,106,000,000 was spent on international travel between Canada and other countries, a rise of between 5 p.c. and 6 p.c. over 1960 expenditures. Total receipts from visitors to Canada amounted to \$473,000,000, comprising \$429,000,000 from United States residents and \$44,000,000 from overseas travellers. The amount spent by United States residents was between 14 p.c. and 15 p.c. higher than in 1960 but expenditures of overseas visitors to Canada were about 2 p.c. lower. Estimates of expenditures by Canadians travelling abroad in 1961 also reached a record high of \$633,000,000, an increase of \$6,000,000 or 1 p.c. over 1960. Travel to the United States accounted for \$453,000,000 of this amount, which was 2 p.c. lower than the amount spent by Canadians in that country in 1960. On the other hand, the \$180,000,000 spent on visits to countries other than the United States in 1961 was \$15,000,000 or 9 p.c. higher than the amount so spent in 1960. It is estimated that Canada's balance of payments deficit on travel account with other countries was reduced by \$47,000,000 or nearly 23 p.c. in 1961 compared with 1960. The total debit balance amounted to \$160,000,000 and comprised a \$24,000,000 deficit with the United States and a \$136,000,000 deficit with other countries.

Only the above summary figures, subject to revision, were available for 1961 at the time of writing (July 1962). Detailed information for 1960 is given in the following text and tables.

* Prepared in the Travel Statistics Unit, National Accounts Division, Dominion Bureau of Statistics.

Receipts from non-resident travel in Canada during 1960 increased by \$29,000,000 over 1959 and reached an all-time high of \$420,000,000, although the total number of entries, at 29,726,500, was down slightly from the previous year. Most of the gain in receipts was accounted for by visitors from the United States who, although fewer in number, spent \$375,000,000 in Canada compared with \$351,000,000 in 1959; the number of such visitors declined from 29,880,800 to 29,654,600. The number of travellers from areas other than the United States, mainly overseas countries, increased by 7 p.c. to 71,900 and their expenditures amounted to \$15,000,000, between 12 p.c. and 13 p.c. higher than in 1959. Canadian travel abroad continues to set new records year by year. The number of re-entries of Canadians in 1960 was 29,286,400, 4 p.c. above 1959, and their expenditures amounted to \$627,000,000, 5 p.c. above the previous year. Although the increase in re-entries was for the most part from visits to the United States, which advanced by 1,055,900, the increase in expenditures (\$28,000,000) was more evenly distributed between the United States (\$13,000,000) and overseas areas (\$15,000,000). There was no appreciable change from 1959 in Canada's balance of payments on travel account which showed a total deficit of \$207,000,000, comprising an \$87,000,000 deficit with the United States and a \$120,000,000 deficit in the overseas account. There has been some reduction in Canada's travel deficit with the United States during the past few years but its effect has been somewhat lessened by a substantial growth in the travel deficit with overseas areas.

1.—Number and Expenditure of Foreign Travellers in Canada and Canadian Travellers Abroad, 1956-60

Year and Item	Foreign Travellers in Canada	Foreign Expenditure in Canada	Canadians Travelling Abroad	Canadian Expenditure Abroad	Excess of Foreign Travellers in Canada	Excess of Canadian Expenditure Abroad
	No.	\$'000	No.	\$'000	No.	\$'000
1956—						
Total.....	27,719,100	337,000	27,215,800	498,000	+ 503,300	+ 161,000
U.S.....	27,666,500	309,000	27,076,700	391,000	+ 589,800	+ 82,000
Overseas.....	52,600	28,000	139,100	107,000	- 86,500	+ 79,000
1957—						
Total.....	28,681,000	363,000	27,368,300	525,000	+1,312,700	+ 162,000
U.S.....	28,619,400	325,000	27,209,400	403,000	+1,410,000	+ 78,000
Overseas.....	61,600	38,000	158,900	122,000	- 97,300	+ 84,000
1958—						
Total.....	28,596,300	349,000	27,595,700	542,000	+1,000,600	+ 193,000
U.S.....	28,530,700	309,000	27,421,700	413,000	+1,109,000	+ 104,000
Overseas.....	65,600	40,000	174,000	129,000	- 108,400	+ 89,000
1959—						
Total.....	29,947,400	391,000	28,192,700	598,000	+1,754,700	+ 207,000
U.S.....	29,880,800	351,000	27,989,900	448,000	+1,890,900	+ 97,000
Overseas.....	66,600	40,000	202,800	150,000	- 136,200	+ 110,000
1960—						
Total.....	29,726,500	420,000	29,286,400	627,000	+ 440,100	+ 207,000
U.S.....	29,654,600	375,000	29,045,800	462,000 ¹	+ 608,800	+ 87,000
Overseas.....	71,900	45,000	240,600	165,000	- 168,700	+ 120,000

¹ Inclusive of Hawaii.

Travel between Canada and the United States.—The gain in receipts from the United States travellers in Canada during 1960 was more than accounted for by a \$28,100,000 increase in the expenditures of automobile visitors, as receipts from visitors travelling by other means of transport declined by some \$4,100,000. Entries by car, which numbered 23,270,500, advanced by 439,300, but the 6,384,100 visitors coming by other means was a decline of 665,500. Entries by rail at roughly 590,000 (including

310,600 in transit) were 29,000 fewer than in 1959 and their expenditures at \$31,000,000 were down by \$5,000,000. On the other hand, the number of arrivals by bus at 416,000 (including 51,200 in transit) advanced some 24,000 and their expenditures at \$32,000,000 showed a gain of \$5,000,000. The 435,000 entries by aircraft (including 9,100 in transit) were some 3,000 higher than in the previous year and their receipts at \$53,000,000 were up \$2,000,000. A similar analysis of boat travel revealed a drop of \$3,000,000 in expenditures, which amounted to \$18,000,000 in 1960, although the number of entries by this mode of transport increased from 419,000 to 439,000. There was a decrease of 684,000 in the number of visitors crossing into Canada by all other forms of transportation (pedestrians, local bus, etc.) and their expenditures were down by \$3,000,000.

Because of the proximity of heavily populated areas on both sides of the International Boundary and the relative ease with which border crossings are made, much of the travel between Canada and the United States is of a short-term nature. In 1960, non-residents remaining in Canada 24 hours or less numbered 20,909,700 and represented 70.5 p.c. of the total entries but their expenditures, which amounted to \$53,000,000, accounted for only 14.2 p.c. of all receipts. However, the proportions of short-term traffic showed considerable variation according to the type of transportation used, ranging from 59 p.c. of the automobile visitors to 18 p.c. of the bus traffic, 15 p.c. of the air traffic and 14 p.c. of the rail traffic. For non-automobile visitors (exclusive of those in transit), it was found that lengths of stay lasting from three to seven days were most common, accounting for 40 p.c. of the bus travellers, between 43 p.c. and 44 p.c. of the rail travellers and 49 p.c. of the air travellers. On the whole, there was a fairly sharp decline in the number of visits after the eight-day length of stay both in the automobile and non-automobile categories. Only 812,900 or between 4 p.c. and 5 p.c. of the non-resident motorists and 220,500 or 21 p.c. of those travelling by rail, bus and air stayed nine days or over in 1960.

Data on length of stay and area of origin for foreign vehicle traffic in Canada staying longer than 24 hours during 1960 disclosed the following averages: Northwestern region, 6.8 days; West Coast region, 5.5 days; Northeastern States, 4.5 days; Great Lakes area, 4 days; and other States, 7.2 days. Average lengths of stay per car from the five States supplying the highest proportions of over-24-hour automobile traffic were: Michigan 3.3 days; New York 3.7 days; Ohio 6.2 days; Washington 4.5 days; and Pennsylvania 5.5 days. It is interesting to note that the total of non-resident automobiles travelling in Canada for two days or more during 1960 represented only 4.5 p.c. of all passenger cars registered in the United States. The highest ratio of entries in relation to registrations by State was from Vermont with 43.8 p.c. followed by Maine with 30.7 p.c. and Michigan with 25.7 p.c. The State of Arkansas showed the lowest ratio; only 0.2 p.c. of the automobiles registered in that State entered Canada in 1960.

Canadians made 29,045,800 visits to the United States in 1960 and spent \$457,000,000, exclusive of visitors to Hawaii whose expenditures amounted to \$5,000,000. Persons travelling by automobile numbered 23,357,700, an increase of 1,152,900 or approximately 5 p.c., and travellers by other means of transport numbered 5,688,100, a slight decline of 97,000 from the 1959 total. However, an examination of the expenditures by these two classifications reveals that disbursements of the automobile group at \$232,000,000 decreased \$3,000,000 or just over 1 p.c., while expenditures of the non-automobile class advanced by \$12,000,000 or between 5 p.c. and 6 p.c. to \$225,000,000. Canadians who spent 24 hours or less in the United States during 1960 accounted for some 80 p.c. of the total visits but for only 12.6 p.c. of the disbursements. Their average expenditure per visit amounted to about \$2.50 compared with the average expenditure per visit of close to \$70 for those remaining over 24 hours. Although the average outlay per visit for Canadians travelling

in the United States regardless of length of stay fell slightly from about \$16 in 1959 to approximately \$15.75 in 1960, there was a moderate gain on a per capita basis. The average amount spent in the United States for each resident of Canada was close to \$25.75, an increase of 1.2 p.c. compared with 1959: population growth in the year amounted to 0.8 p.c. Purchases of merchandise as declared under the 48-hour customs exemption privilege were valued at \$71,000,000 in 1960, a decrease of \$2,000,000 from the 1959 valuation despite a slightly higher average value per declaration.

2.—Number and Expenditure of Foreign Travellers in Canada and Canadian Travellers Abroad, by Means of Travel and Length of Stay, 1960

Item	Foreign Travellers in Canada ¹	Foreign Expenditure in Canada	Canadians Travelling Abroad ¹	Canadian Expenditure Abroad	Excess of Foreign Travellers in Canada	Excess of Canadian Expenditure Abroad
	No.	\$'000	No.	\$'000	No.	\$'000
Travellers from and to overseas countries.....	71,900	45,000	240,600	165,000	- 168,700	+ 120,000
Travellers from and to the United States—						
Short-term (24 hrs. or less)—						
Automobile.....	15,689,600	25,278	18,888,300	35,338	-3,198,700	+ 10,060
Rail.....	349,100	1,139	13,300	301	+ 335,800	- 838
Bus.....	119,800	1,020	41,500	146	+ 78,300	- 874
Aircraft.....	73,900	2,265	22,600	1,449	+ 51,300	- 816
Boat.....	173,300	1,705	19,800	63	+ 153,500	- 1,642
Other (pedestrians, local bus, etc.).....	4,504,000	21,972	4,335,400	20,412	+ 168,600	- 1,560
Totals (U.S. Short-term).....	20,909,700	53,379	23,320,900	57,709	-2,411,200	+ 4,330
Long-term (over 24 hrs.)—						
Automobile.....	7,580,900	194,608	4,469,400	196,676	+3,111,500	+ 2,063
Rail.....	241,300	29,543	319,100	46,281	- 77,800	+ 16,738
Bus.....	295,700	30,636	403,700	49,616	- 108,000	+ 18,980
Aircraft.....	361,000	50,455	428,900	101,539	- 67,900	+ 51,084
Boat.....	266,000	16,528	103,800	5,503	+ 162,200	- 11,025
Totals (U.S. Long-term).....	8,744,900	321,770	5,724,900	399,615	+3,020,000	+ 77,845
Grand Totals, United States.....	29,654,600	375,149	29,045,800	457,321²	+ 608,800	+ 82,175
Grand Totals, All Countries.....	29,726,500	420,119	29,286,400	622,321	+ 440,100	+ 202,175

¹ These figures are the number of entries and re-entries into Canada and thus include substantial amounts of in-transit, commuting and local traffic.

² Exclusive of Hawaii.

3.—Highway Traffic at Canadian Border Points, by Province, 1960

Province or Territory	FOREIGN VEHICLES INWARD			
	Staying 24 Hours or Less	Staying Over 24 Hours	Repeats and Taxis	Commercial Vehicles
	No.	No.	No.	No.
Atlantic Provinces.....	224,324	153,347	1,260,655	94,857
Quebec.....	295,068	327,889	181,698	107,172
Ontario.....	2,809,937	1,970,479	890,139	190,500
Manitoba.....	49,816	43,956	52,238	22,917
Saskatchewan.....	19,816	23,130	13,332	6,817
Alberta.....	14,046	42,025	21,105	8,791
British Columbia.....	143,235	250,846	62,640	53,361
Yukon Territory.....	225	13,507	8	1,950
Totals.....	3,557,367	2,825,179	2,481,815	486,365

3.—Highway Traffic at Canadian Border Points, by Province, 1960—concluded

Province or Territory	CANADIAN VEHICLES RETURNING		
	After Staying 24 Hours or Less 1960	After Staying Over 24 Hours 1960	Commercial Vehicles 1960
	No.	No.	No.
Atlantic Provinces.....	1,841,852	142,266	142,236
Quebec.....	1,031,255	378,173	160,623
Ontario.....	3,092,997	535,481	256,356
Manitoba.....	158,501	79,710	34,293
Saskatchewan.....	79,151	33,191	7,927
Alberta.....	53,403	46,410	11,995
British Columbia.....	884,711	268,234	41,659
Yukon Territory.....	437	607	190
Totals.....	7,142,307	1,484,072	655,279

Travel between Canada and Overseas Countries.—Although the number of persons travelling between Canada and overseas countries generally represents less than 1 p.c. of the total travel movement, expenditures involved are relatively high compared with travel between Canada and the United States. Substantial amounts are required to cover the cost of oceanic transportation and lengths of stay overseas are on the average much longer than in the United States, thereby adding to the amount spent on lodging, meals, entertainment, merchandise, etc. Transportation charges alone, covering fares to and from Canada, accounted for \$25,000,000 or 55 p.c. of the receipts from overseas visitors in 1960 and \$53,000,000 or 32 p.c. of the expenditures of Canadians travelling overseas. Roughly two-thirds of the 71,900 non-immigrant entries from overseas arrived in Canada by air and the remainder by vessel, with Canadian air and steamship facilities handling approximately 39 p.c. A classification according to country of origin shows very little change from 1959 data, with 54 p.c. originating in Britain, 10.3 p.c. in other Commonwealth countries, 30.3 p.c. in Continental Europe and 5.4 p.c. in other areas.

In 1960, as in previous years, about 75 p.c. of the visitors coming to Canada from overseas came for the purpose of touring the country or visiting friends and relatives; almost 14 p.c. were concerned with temporary professional services or matters of the clergy; just over 4 p.c. were classified as students; 2 p.c. were in transit or members of ships' crews; 2 p.c. were either diplomats or members of the Allied Armed Forces; and entertainers and all other miscellaneous categories represented slightly more than 2 p.c. A distribution of entries by country of last permanent residence shows that tourists and visitors accounted for 80 p.c. of the arrivals from Britain, 74 p.c. of those from Continental Europe, 69 p.c. of those from other Commonwealth areas, and 61 p.c. of those from all other countries. The frequency of arrivals classified as temporary professionals and clergymen varied from 8 p.c. for Commonwealth countries (excluding Britain) to 15 p.c. for countries of Continental Europe. In addition, the popularity of academic study in Canada by non-residents ranged widely from 1 p.c. of the visitors from Britain to 19 p.c. of those from other Commonwealth areas, notably India, the West Indies and Bermuda. Of the tourists and persons visiting friends or relatives, temporary professionals and clergymen, diplomats and members of the Allied Forces, respectively, slightly over 50 p.c. were from Britain. Of the total number of students, between 51 p.c. and 52 p.c. originated in other Commonwealth countries. At the same time, Continental European countries accounted for the largest proportion of in-transit travel and members of crews, entertainers and the residual classifications of overseas visitors, amounting to 41 p.c., 47 p.c., and 66 p.c., respectively.

4.—Non-immigrant Visitors Entering Canada Direct from Overseas Countries, by Type of Transportation, 1959 and 1960

Country of Residence	Arrivals by Aircraft		Arrivals by Vessel		Totals	
	1959	1960	1959	1960	1959	1960
	No.	No.	No.	No.	No.	No.
Britain	11,784	16,457	11,267	9,394	23,051	25,851
England.....	9,395	12,850	8,592	7,144	17,987	19,994
Scotland.....	1,922	2,977	1,950	1,593	3,872	4,570
Northern Ireland.....	284	359	414	343	698	702
Wales.....	148	223	258	271	406	494
Lesser British Isles.....	35	48	53	43	88	91
Other Commonwealth, n.e.s.	2,744	3,612	1,271	1,074	4,015	4,686
Australia.....	544	744	728	607	1,272	1,441
West Indies.....	831	1,224	106	27	937	1,251
New Zealand.....	217	307	232	280	449	587
Bermuda.....	488	533	18	1	506	534
India.....	192	265	50	52	242	317
Other.....	472	539	137	17	609	556
Europe, n.e.s.	6,975	9,266	5,119	5,236	12,094	14,502
Germany.....	1,573	2,268	1,454	1,610	3,027	3,878
Netherlands.....	1,283	1,752	1,636	1,942	2,919	3,694
France.....	1,340	1,762	578	520	1,918	2,282
Italy.....	305	572	236	202	541	774
Belgium.....	353	483	120	134	473	617
Switzerland.....	345	359	114	115	459	474
Denmark.....	298	357	93	108	391	465
Austria.....	251	312	202	128	453	440
Norway.....	240	231	76	79	316	310
Poland.....	94	106	342	165	436	271
Ireland.....	154	156	110	92	264	248
Sweden.....	195	197	35	17	230	214
Spain.....	64	188	10	14	74	202
U.S.S.R.....	115	193	1	1	116	194
Greece.....	36	56	30	74	66	130
Czechoslovakia.....	144	122	8	4	152	126
Other.....	185	152	74	31	259	183
Other	2,120	2,467	336	379	2,456	2,846
Mexico.....	769	778	5	8	774	786
Japan.....	291	310	115	90	406	400
Union of South Africa.....	141	209	86	69	227	278
South America.....	313	234	29	37	342	271
Africa, n.e.s.....	112	188	27	24	139	212
West Indies (not British).....	75	145	4	13	79	158
Asia, n.e.s. (not British).....	102	233	44	123	146	356
Israel.....	44	121	15	13	59	134
Other.....	273	249	11	2	284	251
Totals	23,623	31,802	17,993	16,083	41,616	47,885
Percentage of Totals—	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Britain.....	49.9	51.8	62.6	58.4	55.4	54.0
Other Commonwealth, n.e.s.....	11.6	11.4	7.0	6.7	9.7	9.8
Europe, n.e.s.....	29.5	29.1	28.5	32.6	29.0	30.3
Other.....	9.0	7.7	1.9	2.3	5.9	5.9

Re-entries of Canadians from trips overseas reached a record 240,600 in 1960, between 18 p.c. and 19 p.c. higher than in 1959. This number included 188,600 re-entries direct and 52,000 via the United States, increases of 20 p.c. and 13 p.c., respectively. Expenditures by Canadians in overseas countries also reached a new high of \$165,000,000, exceeding 1959 payments by some \$15,000,000. Canadians returning direct were responsible for all of this gain, having increased their spending by \$17,000,000 to \$140,000,000; on the other hand, expenditures of re-entries via the United States declined by \$2,000,000 to \$25,000,000. Payments for transportation (excluding domestic and United States carriers) direct between Canada and overseas countries amounted to \$15,000,000, of which 74 p.c. was allocated to airlines compared with 67 p.c. in 1959. Direct re-entries through principal Canadian airports numbered 142,400 in 1960 compared with 106,600 in 1959 and

represented 75 p.c. of all direct re-entries; the number of residents returning at major Canadian seaports decreased by about 5,300. Seasonal variation was much more pronounced in re-entries by vessel than by air. There were almost three times as many return trips by sea in the second quarter of the year as in the first, while re-entries by aircraft during these two periods were approximately equal. The volume of Canadian travellers returning by vessel is considerably lower in the first half of each year because of the winter hold-up of traffic in the St. Lawrence River ports of Quebec and Montreal. For this reason also, direct re-entries at the Atlantic seaports of Halifax and Saint John reach their maximum during this time of year.

In both 1960 and 1959 about 59 p.c. of the Canadians returning from overseas had visited Britain (including 29 p.c. in combination with trips to Continental Europe) but their expenditures in 1960 in that area increased by almost \$10,000,000 to \$64,000,000 compared with 1959. Approximately 48 p.c. of the direct re-entries had travelled to countries in Continental Europe (including the 29 p.c. in combination with visits to Britain), a slightly higher percentage than in 1959, and disbursements in this area, which amounted to almost \$57,000,000, showed a gain of just under \$8,000,000. The proportion of persons who had been to other Commonwealth countries fell slightly to between 10 p.c. and 11 p.c. but their expenditures of around \$9,000,000 were about the same as in 1959. The remainder of Canadian direct re-entries in 1960 had travelled to other areas and spent \$11,000,000, a moderate increase over the previous year.

Canadians returning from overseas travel via the United States in 1960 were estimated to have spent less money than during 1959, despite an increase of 6,000 in the number of visits. Lower expenditures in Britain and other European areas were largely responsible for the decrease, as payments to other countries advanced slightly and transportation charges (except those paid to United States and Canadian carriers) remained at \$8,000,000. It is estimated that total expenditures of Canadians returning from overseas via the United States were distributed as follows: Britain, \$6,000,000; other Europe, \$8,000,000; other British areas, \$5,000,000; and destinations not already specified, \$6,000,000. There are certain features characteristic of overseas travel via the United States that distinguish it from direct travel; these include a higher proportion of visits to more southerly destinations such as Bermuda, the West Indies, the Bahamas and Mexico, greater frequency of recreation travel and generally shorter lengths of stay outside Canada.

Tourist Information.—Tourist information generally is supplied by the Canadian Government Travel Bureau, Ottawa, and detailed information on the National Parks and Historic Sites is available from the Department of Northern Affairs and National Resources, Ottawa. For advice regarding specific provinces or particular cities or resorts, application should be made to the provincial or municipal Bureau of Information concerned.

CHAPTER XXI.—PUBLIC FINANCE*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Section 1.—Combined Statistics of Public Finance for All Governments

Combined statistics of public finance for all governments in Canada—federal, provincial and municipal—are presented in this Section and Section 2 covers the incidence of taxation at the three levels. More detailed information for each level of government is given in Sections 3, 4 and 5.

Combined Revenue and Expenditure.—Tables 1 and 2 give details of the federal, provincial and municipal net combined revenue by source and net combined current and capital expenditure by function, respectively, for 1958 and 1959. This net basis has been prepared by deducting from revenue, and the appropriate expenditure, certain specified amounts such as grants-in-aid and shared-cost contributions from other governments, institutional revenue, and interest, premium, discount and exchange revenue. Amounts provided for debt retirement are excluded to avoid duplication since all expenditure resulting from capital borrowings is included.

Inter-government transfers such as subsidy payments by the Federal Government to the provincial governments are unconditional grants and therefore cannot be offset against any specific expenditure. These are set out separately in Tables 1 and 2 in order to prevent duplication and to provide additive totals. Because of the differing accounting practices of governments and variations in fiscal year-ends, discrepancies appear between the amounts recorded as inter-government transfers in the two tables.

* Except as otherwise indicated, revised in the Public Finance and Transportation Division, Dominion Bureau of Statistics.

1.—Combined Revenue of All Governments, 1958 and 1959

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Source of Revenue	1958				1959			
	Federal	Pro- vincial	Municipal	Total	Federal	Pro- vincial	Municipal	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Taxes—								
Income—								
Corporations.....	1,075,878	226,150	—	1,302,028	1,234,216	248,987	—	1,483,203
Individuals.....	1,499,849	47,773	—	1,547,622	1,752,194	54,454	—	1,806,648
Interest, dividends and other income going abroad.....	61,213	—	—	61,213	73,353	—	—	73,353
General sales.....	868,114	186,733	57,969	1,112,816	1,002,658	209,211	73,435	1,285,304
Motor fuel and fuel oil sales.....	—	364,401	518	364,749	—	382,560	640	383,200
Other sales.....	—	52,852	3,571	56,423	—	55,085	2,207	57,292
Excise duties and special excise taxes.....	556,888	—	—	556,888	620,661	—	—	620,661
Customs import duties.....	486,508	—	—	486,508	525,722	—	—	525,722
Real and personal property.....	—	8,737	996,244	1,004,981	—	8,330	1,157,236	1,165,566
Business.....	—	—	64,441	64,441	—	—	39,135 ¹	39,135
Estate taxes and succession duties.....	72,535	55,797	—	128,332	88,131	56,247	—	144,678
Other.....	1,213	67,716	10,081	79,010	1,373	153,599	8,337	163,309
Totals, Taxes.....	1,622,198	1,010,159	1,132,654	6,765,011	5,298,608	1,168,473	1,280,990	7,748,071
Privileges, Licences and Permits—								
Liquor control and regulation.....	10	38,412	—	38,422	10	44,920	—	44,930
Motor vehicle.....	—	146,408	—	146,408	—	164,610	—	164,610
Natural resources.....	10,878	258,770	—	269,648	5,924	303,311	—	309,235
Other.....	18,561	22,897	23,666	65,124	20,211	26,698	24,748	71,657
Totals, Privileges, Licences and Permits.....	29,449	466,487	23,666	519,602	26,145	539,539	24,748	590,432
Sales and services.....	56,910	33,303	—	90,213	46,843	37,295	—	84,138
Receipts from Government Enterprises—								
Liquor boards and commissions.....	—	175,338	—	175,338	—	180,227	—	180,227
Other.....	99,924	5,748	37,858	143,530	88,366	6,851	36,563	131,780
In lieu of municipal taxes from federal and provincial government enterprises.....	—	—	7,168	7,168	—	—	8,826	8,826
Totals, Receipts from Government Enterprises.....	99,924	181,086	45,026	326,036	88,366	187,078	45,389	320,833
Other revenue.....	219,423	10,968	92,627	323,018	235,274	11,240	103,293	349,807
Non-revenue and surplus receipts.....	37,620	9,086	—	46,706	40,610	3,737	—	44,347
Totals, Net General Revenue excluding Inter-government Transfers.....	5,065,524	1,711,089	1,293,972	8,070,586	5,735,846	1,947,362	1,454,420	9,137,628
Inter-government Transfers—								
Tax-sharing arrangements.....	—	399,100	—	399,100	—	461,348	—	461,348
Share of income tax on power utilities.....	—	8,483	—	8,483	—	4,754	—	4,754
Subsidies.....	—	60,197	62,885	123,082	—	53,772	65,393	119,165
Special payments.....	—	—	1,892	1,892	—	—	2,701	2,701
Grants in lieu of municipal taxes on federal and provincial property.....	—	—	20,703	20,703	—	—	23,251	23,251
Grand Totals, Net General Revenue.....	5,065,524	2,178,869	1,379,453	8,623,846	5,735,846	2,467,236	1,545,765	9,748,847

¹ Incomplete; not separable from real property taxes in some provinces.

2. — Combined Expenditure of All Governments, 1958 and 1959

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Function	1958				1959			
	Federal	Pro- vincial	Municipal ¹	Total	Federal	Pro- vincial	Municipal ¹	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Defence services and mutual aid...	1,664,313	—	—	1,664,313	1,542,545	—	—	1,542,545
Veterans pensions and other benefits.....	295,388	—	—	295,388	293,106	—	—	293,106
Health, hospital care and other....	129,695	330,257	74,998	534,950	226,789	436,923	68,426	732,138
Social Welfare—								
Aid to aged persons.....	589,594 ²	52,414	..	..	605,348 ²	60,134	..	..
Aid to unemployed and unemployables.....	39,265	39,793	..	..	56,218	41,417	..	..
Family allowances.....	477,732	—	—	477,732	494,138	—	—	494,138
National employment services..	73,357	—	—	73,357	82,456	—	—	82,456
Other.....	21,814	99,337	34,260	155,411	23,780	104,384	37,982	166,146
Totals, Social Welfare.....	1,201,762	191,544	34,260	1,427,566	1,261,940	205,935	37,982	1,505,857
Education.....	64,866	521,782	522,193	1,108,841	69,479	602,851	658,309	1,330,639
Transportation and Communications—								
Highways, roads and bridges....	89,343	616,049	309,602	1,014,994	108,651	675,821	345,637	1,130,109
Other.....	239,981	6,012	—	245,993	267,627	4,630	—	272,257
Natural resources and primary industries.....	263,309	158,226	—	421,535	286,410	174,089	—	460,499
Debt charges excluding debt retirement.....	545,721	55,351	101,226	702,298	657,066	54,965	117,753	829,784
Payments to own government enterprises.....	169,741	4,527	11,633	185,901	154,252	4,717	13,919	172,888
General government.....	261,982	95,444	120,699	478,125	251,571	110,519	129,425	491,515
Protection of persons and property.....	72,575	116,336	191,564	380,505	76,185	125,625	211,847	413,657
Sanitation and waste removal.....	—	—	116,832	116,832	—	—	134,162	134,162
International co-operation and assistance.....	62,523	—	—	62,523	79,654	—	—	79,654
Other.....	339,050	62,979	112,134	514,163	368,787	62,826	136,201	567,814
Non-expense and surplus payments.	291	8,253	—	8,544	499	19,361	—	19,860
Totals, Net General Expenditure excluding Inter-government Transfers.....	5,400,540	2,166,769	1,595,171	9,162,471	5,644,561	2,478,262	1,833,661	9,976,484
Inter-government Transfers—								
Tax-sharing arrangements.....	399,100	—	—	399,100	461,341	—	—	461,341
Share of income tax on power utilities.....	8,683	—	—	8,683	4,753	—	—	4,753
Subsidies.....	60,197	60,326	—	120,523	53,774	65,293	—	119,067
Special payments.....	1,114	944	—	2,058	1,809	1,114	—	2,923
Grants in lieu of municipal taxes on federal and provincial property.....	22,004	1,144	—	23,148	22,605	1,266	—	23,871
Grand Totals, Net General Expenditure.....	5,891,638	2,229,174	1,595,171	9,715,983	6,188,843	2,545,935	1,833,661	10,588,439

¹ Excludes capital expenditures out of capital fund for the Province of Quebec.
from Old Age Security Fund.² Includes pensions paid

Consolidated Debt.—Table 3 gives details of combined debt of all governments for 1958 and 1959 with the aggregate debt of the federal, provincial and municipal governments; the inter-government debt is deducted to arrive at a consolidated government figure.

3.—Consolidated Debt of All Governments, 1958 and 1959

NOTE.—Figures are for fiscal years ended nearest Dec. 31.

Item	1958					1959						
	Federal	Pro- vincial	Municipal	Total	Deduct Inter- government Debt	Consoli- dated Government Debt	Federal	Pro- vincial	Municipal	Total	Deduct Inter- government Debt	Consoli- dated Government Debt
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Direct Debt—												
Funded debt ¹	13,979,113	3,454,217	3,408,052	20,841,382	203,920	20,637,462	13,765,152	3,497,621	3,804,056	21,066,869	198,009	20,868,860
Less sinking funds.....	83,214	668,005	118,681	869,900	—	869,900	85,272	618,158	132,937	836,367	—	836,367
Net funded debt.....	13,895,899	2,786,212	3,289,371	19,971,482	203,920	19,767,562	13,679,880	2,879,463	3,671,159	20,230,502	198,009	20,032,493
Treasury bills ²	1,595,000	26,981	—	1,621,981	—	1,621,981	2,125,000	46,837	—	2,171,837	—	2,171,837
Savings deposits.....	34,156	34,156	—	68,312	—	68,312	29,372	38,962	—	68,334	—	68,334
Temporary loans.....	—	26,328	204,608	230,936	—	230,936	—	26,547	246,281	272,828	—	272,828
Other direct liabilities.....	4,437,741	338,395	312,802	5,088,938	40,885	5,039,053	4,850,831	374,238	338,555	5,563,624	47,454	5,516,170
Totals, Direct Debt (less sinking funds).....	19,962,796	3,177,916	3,806,781	26,947,493	253,805	26,693,688	20,655,083	3,327,085	4,255,995	28,268,163	245,463	28,022,700
Indirect Debt—												
Guaranteed bonds.....	987,907	2,577,266	14,551	3,579,724	152,365	3,427,359	1,430,107	2,996,265	80,141	4,506,513	193,918	4,312,595
Less sinking funds.....	—	50,523	290	50,813	2,468	48,345	—	67,673	1,862	69,535	2,039	67,496
Net guaranteed bonds.....	987,907	2,526,743	14,261	3,528,911	149,897	3,379,014	1,430,107	2,928,592	78,279	4,436,978	191,879	4,245,099
Loans under the Municipal Improvement Assistance Act, 1938.....	—	2,098	—	2,098	2,098	—	—	1,841	—	1,841	1,841	—
Guaranteed bank loans and other indirect liabilities.....	2,253,613 ⁴	152,379	4	2,405,996	3,527	2,402,469	2,944,992 ⁴	150,939	15	3,095,946	2,084	3,093,862
Totals, Indirect Debt (less sinking funds).....	3,241,520	2,681,220	14,265	5,937,005	155,522	5,781,483	4,375,099	3,081,372	78,294	7,534,765	195,804	7,338,961
Grand Totals.....	23,204,316	5,859,136	3,821,046	32,884,498	409,327	32,475,171	25,030,182	6,408,457	4,334,289	35,802,928	441,267	35,361,661

¹ Includes treasury bills having a term of two or more years.² Includes treasury bills having a term of less than two years.³ Included in "Other direct liabilities".⁴ Excludes contingent liability in respect of Federal Government guarantee of deposits maintained by chartered banks in the Bank of Canada and miscellaneous guarantees the amounts of which were not finally determined or were indeterminate at the close of the fiscal year.

Section 2.—Taxation in Canada*

Canada is a federal state with a central government and ten provincial governments. In 1867 the principal colonies of the British Crown in North America joined together to form the nucleus of a new nation and the British North America Act of that year became its written constitution. This statute created a central government with certain powers while continuing the existence of political subdivisions called provinces with powers of their own.

Under the British North America Act the Parliament of Canada has the right of raising "money by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the Province in order to the raising of a Revenue for Provincial purposes". Thus the provinces have a right to share only in the field of direct taxation while the Federal Government is not restricted in any way in matters of taxation. The British North America Act also empowers the provincial legislatures to make laws regarding "municipal institutions in the Province". This means that the municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, from a practical standpoint, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it". In essence, this conception has limited the provincial governments to the imposition of income tax, retail sales tax, succession duties and an assortment of other direct levies. In turn, municipalities, acting under the guidance of provincial legislation, tax real estate, water consumption, places of business and in some cases retail sales. The Federal Government levies direct taxes on income, on gifts, and on the estates of deceased persons and indirect taxes such as excise taxes, excise and customs duties, and a sales tax.

The increasing use by both the federal and the provincial governments of their rights in the field of direct taxation in the 1930's resulted in uneconomic duplication and some severe tax levies. Starting in 1941, a series of tax agreements, each normally enduring for a period of five years, were concluded between the federal and the provincial governments to promote the orderly imposition of direct taxes. All provinces surrendered their claims to personal income tax for the duration of the wartime agreements which expired in 1947. The Provinces of Quebec and Ontario did not rent any tax fields under the 1947 agreements. The Province of Quebec did not rent any of its tax fields under the 1952 and 1957 agreements; the Province of Ontario did not rent succession duties under the 1952 agreements and did not rent either succession duties or corporation income tax under the 1957 agreements. Apart from these exceptions all provinces participated in the various tax agreements as fully as possible. Newfoundland rented its tax fields as soon as it entered Confederation.

Under these agreements, the participating provinces undertook, in return for compensation, not to use or permit their municipalities to use certain of the direct taxes. Under the last two agreements, the federal income tax and death tax otherwise payable in non-participating provinces were abated by a fixed percentage to make room for the provincial levies. The Wartime Tax Agreements of 1942 are outlined in the 1946 Year Book, pp. 900-901; the 1947 and 1952 Tax Rental Agreements in the 1954 Year Book, pp. 1087-1090; and the 1957 fiscal arrangements in the 1961 Year Book, pp. 1067-1069. The 1962 fiscal arrangements are authorized by the Federal-Provincial Fiscal Arrangements Act, assented to Sept. 29, 1961. They became operative on Apr. 1, 1962 and will run until Mar. 31, 1967.

Basically, the new arrangement entails a partial federal withdrawal from the field of direct taxation and the re-entry of all provinces into the vacated area. The Federal Government will reduce its personal income tax otherwise payable on income earned in a province, and on income received by a resident of a province, by the following percentages:

* Revised (June 1962) in the Taxation Division, Department of Finance, under the direction of F. R. Irwin, Director of the Division, and by the provincial authorities concerned.

16 p.c. in 1962; 17 p.c. in 1963; 18 p.c. in 1964; 19 p.c. in 1965; and 20 p.c. in 1966. Also, the Federal Government has reduced its rate of corporation income tax on taxable income of corporations earned in the provinces. The reduction is 9 p.c. of taxable income earned in any province except Quebec and 10 p.c. of taxable income earned in Quebec. The additional 1-p.c. reduction in respect of taxable income earned in Quebec is to compensate for the additional tax levied by the province on corporation income to provide grants to universities. These provincial grants replace federal grants which in other provinces are paid to the universities by the Federal Government through the Canadian Universities Foundation. This additional 1 p.c. in Quebec had not yet been brought into force by legislation as of June 1962.

The Federal Government will continue to abate the estate tax otherwise payable by 50 p.c. in respect of property situated in a province which levies its own death tax. Only Ontario and Quebec have signified their intention to levy death taxes in the form of succession duties for the period 1962-67.

These reductions in federal income tax and estate tax under the new arrangement do not apply to the Yukon Territory or the Northwest Territories or to income earned outside Canada. The Yukon and Northwest Territories do not impose income taxes or death taxes.

The provincial tax rates are not restricted to the extent of the federal withdrawal. Their constitutional position permits them unlimited use of direct taxes for the raising of revenue for provincial purposes. However, in all but four provinces (Ontario, Quebec, Manitoba and Saskatchewan) rates of income tax coincide with the amount of the federal abatement.

As part of the new arrangement, the Federal Government has entered into tax collection agreements under which it collects the provincial personal income taxes for all provinces except Quebec and the provincial corporation income taxes for all provinces except Ontario and Quebec.

The Atlantic Provinces Adjustment Grants are continued for another five years at the increased level of \$35,000,000 per annum, with the distribution as determined by the four provinces being: Newfoundland, Nova Scotia and New Brunswick \$10,500,000 each, and Prince Edward Island \$3,500,000. The additional grant to Newfoundland, payable under the Newfoundland Additional Grants Act of 1959, is continued at \$8,000,000 per annum for the five-year period of the new arrangement.

Subsection 1.—Federal Taxes

Individual Income Tax

Every individual who is a resident of Canada at any time during a year is liable for the payment of income tax for that year. In addition, every non-resident individual who is employed or carries on business in this country during a year is required to pay tax on the part of his taxable income earned in Canada. Canadian taxation practice is based to a large extent on the British experience. This is reflected particularly in the fact that taxation is on the basis of residence rather than citizenship, and in the tax freedom for capital gains. The term "residence" is difficult to define simply but, generally speaking, it is taken to be the place where a person resides or where he maintains a dwelling ready at all times for his use. There are also extensions of the meaning of Canadian resident to include a person who has sojourned in Canada for an aggregate period of 183 days in a taxation year, or a person who was during the year a member of the Armed Forces of Canada, or an ambassador, a high commissioner, or an officer or servant of Canada or of any one of its provinces, or the spouse or dependent child of any such person.

The Canadian tax law uses the concepts "income" and "taxable income". The income of a resident of Canada for a taxation year comprises his revenues from all sources inside or outside Canada and includes income for the year from all businesses, property, offices and employments. It does not include capital gains unless they arise out of the conduct of a business or as a result of an adventure in the nature of trade.

In computing his income for a taxation year, an individual must include all dividends, fees, annuities, pension benefits, allowances, interest, alimony, maintenance payments and other miscellaneous sources of income. On the other hand, war service disability pensions paid by Canada or an ally of Her Majesty at the time of the war service, unemployment insurance benefits, compensation in respect of an injury or death paid under a Workmen's Compensation Act of a province and family allowances do not have to be included in the computation of income.

In computing his income, an individual who is carrying on business may deduct business expenses including depreciation (called capital cost allowances), interest on borrowed money, reserves for doubtful debts, contributions to pension plans or deferred profit-sharing plans for his employees, bad debts, and expenses incurred for scientific research. In general, no deductions are allowed in computing income from salary and wages although there are exceptions. These exceptions include travelling expenses of employees who have to travel as they perform their work (such as employees on trains), union dues, alimony payments, and contributions to registered pension plans. Individuals may deduct, within limits, amounts set aside to provide a future income under registered retirement savings plans. Students in full-time attendance at a university or other educational institution in a course at a post-secondary school level may deduct their tuition fees in computing their income.

Having computed his income the individual then calculates his taxable income by deducting certain exemptions and deductions: for single status an exemption of \$1,000; for married status an exemption of \$2,000; for dependent children eligible to receive family allowance* \$300 per child;† for other dependants (as defined in the law), \$550 per dependant;‡ for a taxpayer over 65 years of age, an additional \$500; for a taxpayer who is blind or confined to a bed or a wheelchair for the whole of the taxation year, an additional \$500; for charitable donations, up to 10 p.c. of income; and for medical expenses, in excess of 3 p.c. of income. In lieu of claiming deductions for charitable donations, medical expenses and membership dues in trade unions or professional societies, an individual may claim a standard deduction of \$100.

As already stated, an individual who is resident in Canada for the whole year is taxed on his income from both inside and outside Canada. An individual who is not resident in Canada at any time during the year but who carries on business in Canada or who earns salary or wages in Canada is taxed only on the income earned in Canada. In computing taxable income earned in Canada, such a non-resident individual is allowed to deduct that part of the exemptions and deductions that may reasonably be attributed to the income earned in Canada. (A non-resident who derives investment income from Canada is taxed in a different way described under a separate heading.) An individual who ceases to be a resident of Canada during the year or who becomes a resident during the year so that he is resident for only part of the year will be subject to income tax in Canada on only that part of his income for the year received while he is resident in Canada. In these circumstances the deductions from income permitted for determining taxable income will be the amount that may reasonably be considered as applicable to the period during which he is resident in Canada.

A progressive schedule of rates is applied to taxable income. These rates begin at 11 p.c. on the first \$1,000 of taxable income and increase to 80 p.c. on taxable income in excess of \$400,000. In addition, an old age security tax is levied on taxable income at the rate of 3 p.c. with a maximum of \$90 reached at the level of \$3,000.

In calculating the amount of his income tax, an individual is allowed tax credits under three main headings: (1) *Dividend Tax Credit*—to partially eliminate the double taxation of corporate profits and to encourage participation in the ownership of Canadian companies, Canadian resident individuals are allowed to deduct from their tax an amount equal

* See p. 252.

† Prior to 1962, these deductions were \$250 and \$500, respectively. The 1962 Budget Speech announced that, effective Jan. 1, 1962, they would be raised to \$300 and \$550, respectively. The proposed changes had not yet been brought into force by legislation as of June 1962.

to 20 p.c. of the net dividends they receive from Canadian taxable companies; (2) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income; and (3) *Abatement under Federal-Provincial Arrangement*—in 1962 the federal personal income tax otherwise payable on income of a resident of a province and on income earned in a province is reduced by 16 p.c. and will increase by one percentage point a year until it becomes 20 p.c. in 1966.

To a very large extent individual income tax is payable as the income is earned. Taxpayers in receipt of salary or wages have tax deducted from their pay by their employer and in this way pay nearly 100 p.c. of their tax liability during the calendar year. The balance of the tax, if any, is payable at the time of filing the tax return before Apr. 30 in the following year. People with more than 25 p.c. of their income from sources other than salary or wages must pay tax by quarterly instalments throughout the year. Here again returns must be filed before Apr. 30 in the following calendar year.

The following statement shows what taxpayers pay at various levels of income. In calculating these taxes it has been assumed that all taxpayers take the standard deduction of \$100. No allowance has been made for the 20-p.c. dividend tax credit. In calculating the taxes shown for a married taxpayer with two children eligible for family allowances, a deduction of \$300 has been allowed for each child.

<u>Status</u>	<u>Income</u>	<u>Income Tax</u>	<u>Old Age Security Tax</u>
	\$	\$	\$
Single taxpayer—no dependants.....	1,200	11	3
	1,500	44	12
	2,000	99	27
	2,500	166	42
	3,000	236	57
	5,000	591	90
	10,000	1,840	90
	20,000	5,825	90
	50,000	20,965	90
	100,000	50,855	90
Married taxpayer—no dependants.....	2,200	11	3
	2,500	44	12
	3,000	99	27
	5,000	403	87
	10,000	1,544	90
	20,000	5,375	90
	50,000	20,415	90
	100,000	50,205	90
Married taxpayer—two children eligible for family allowances.....	2,800	11	3
	3,000	33	9
	5,000	301	69
	10,000	1,388	90
	20,000	5,105	90
	50,000	20,085	90
	100,000	49,815	90

The income taxes shown above are abated by 16 p.c. in all provinces. In all provinces except Quebec, Manitoba and Saskatchewan the provincial tax is the same as the federal abatement. Therefore in these provinces the taxes shown above are the combined federal and provincial taxes. In Quebec the provincial tax does not coincide with the federal abatement. In Manitoba and Saskatchewan the provincial tax exceeds the abatement by 6 p.c.

Corporation Income Tax

The Income Tax Act levies a tax upon the income from everywhere in the world of corporations resident in Canada and upon the income attributable to operations in Canada of non-resident corporations carrying on business in Canada.

In computing their income, corporations may deduct operating expenses including municipal real estate taxes, reserves for doubtful debts, bad debts and interest on borrowed money. They may not deduct provincial income taxes other than provincial taxes on

income derived from mining operations. (For this purpose "income from mining operations" is specially defined.) Prior to 1962, corporations could deduct provincial taxes on income derived from logging operations (as defined in the law). However, it was announced in the 1962 Budget Speech that, for 1962 and subsequent taxation years, this deduction from income would be repealed and replaced by a deduction *from tax* of an amount equal to the lesser of two-thirds of a provincial tax on income from logging operations or two-thirds of 10 p.c. of the corporation's income from logging operations in the province. This change had not yet been brought into force by legislation as of June 1962.

Regulations covering capital cost allowances (depreciation) permit taxpayers to deduct over a period of years the actual cost of all depreciable property. The yearly deductions of capital cost allowances are computed on the diminishing balance principle. (Taxpayers engaged in farming and fishing may choose between this and the straight line method.) Published regulations establish a number of classes of property and maximum rates. There is provision for recapture of any amount allowed in excess of the ultimate net capital cost of any asset. Since Jan. 1, 1961, accelerated depreciation provisions have been available to taxpayers in certain circumstances and for a limited period of time. Businesses established in surplus manpower areas (specific areas officially designed as such) which produce goods new to these areas or a business engaged in the production of goods that are new to Canada are allowed to claim depreciation at double the normal rates of capital cost allowance for one year in respect of capital expenditures incurred for the purpose of producing these new goods. This special incentive, which became operative on Jan. 1, 1961, will remain available until Jan. 1, 1964. Since June 20, 1961, a modernization allowance in the form of a 50-p.c. increase in the first year in the rates of capital cost allowance can be claimed by a business for expenditures on new capital assets which exceed its expenditures on capital assets in the previous year or its average expenditures on capital assets in the three previous years. This special allowance is available in respect of all depreciable assets eligible for depreciation by the diminishing balance principle which are acquired before Apr. 1, 1964.

Expenditures on scientific research by corporations qualify for special tax treatment. Generally speaking, all expenditures on scientific research in Canada may be written off for tax purposes in the year when incurred. In addition, it was announced in the 1962 Budget Speech that, for 1962 and subsequent taxation years, corporations will be permitted to deduct from income for tax purposes 150 p.c. of their increased expenditures on industrial research. This special incentive had not yet been brought into force by legislation as of June 1962.

Taxpayers operating mines, oil wells and gas wells are allowed a depletion allowance, usually computed as a percentage of profits derived from mineral, oil or gas production, which continues as long as the mine or well is in operation. This allowance is in addition to capital cost allowances on buildings, machinery and similar depreciable assets used by the taxpayer. Taxpayers operating timber limits receive an annual allowance sometimes called a depletion allowance. This is a rateable proportion of the amount invested in the limit and is based on the amount of timber cut in the year. When the amount invested in the limit has been recovered no further allowance is given.

In computing taxable income, corporations may deduct dividends received from other Canadian taxpaying corporations and also from foreign corporations in which the Canadian corporation has at least 25 p.c. stock ownership. Business losses may be carried back one year or forward five years and deducted in computing taxable income. Corporations may also deduct donations to charitable organizations up to a maximum of 10 p.c. of their income.

The general rates of tax on corporate taxable income are 18 p.c. on the first \$35,000 of taxable income plus 47 p.c. on taxable income in excess of \$35,000. Corporations deriving more than one-half of their gross revenue from the sale of electrical energy, gas, or steam pay tax on their taxable income from such sources at the rate of 18 p.c. on the first \$35,000 of taxable income plus 45 p.c. on taxable income in excess of \$35,000. Corporations that qualify as investment companies pay a tax of 18 p.c. on their taxable income. In addition to these rates all corporations pay an old age security tax of 3 p.c. of taxable income bringing

their rates up to 21 p.c. and 50 p.c. (21 p.c. and 48 p.c. for the public utility companies and 21 p.c. for investment companies).

In calculating the amount of their income tax, corporations are allowed tax credits under two headings: (1) *Foreign Tax Credit*—foreign taxes paid on income from foreign sources may be credited against Canadian income tax but the credit may not exceed the proportion of Canadian tax relative to such income; and (2) *Abatement under Federal-Provincial Arrangement*—corporations may deduct from their federal tax otherwise payable a tax abatement equal to a fixed percentage of their taxable income attributable to operations in a Canadian province. This abatement is to make room for the provincial income tax levied by each Canadian province. The amount of the abatement is 9 p.c. of taxable income attributable to operations in any province except Quebec and 10 p.c. of taxable income attributable to operations in Quebec. This additional 1 p.c. in Quebec had not yet been brought into force by legislation as of June 1962.

It was announced in the 1962 Budget Speech that a tax incentive based upon increased sales would be available to corporations engaged in manufacturing or processing. This concession will consist of cancellation of 50 p.c. of the federal income tax on the first \$50,000 of taxable income arising from increased sales and cancellation of 25 p.c. of the tax on any additional taxable income arising from increased sales. This proposal for a tax incentive had not yet been brought into force by legislation as of June 1962.

Corporations are required to pay their taxes (combined income and old age security taxes) in monthly instalments. In each of the last six months of their fiscal year and the three months following the end of their fiscal year, they must pay one-twelfth of their estimated tax for the year. The estimate of the amount payable may be based on the taxable income of the previous year or the estimated taxable income of the year in progress. In each of the following two months they pay one-third of the estimated balance of the tax computed by reference to the income of the fiscal year. In the sixth month following the end of their fiscal year the final return must be filed and the remainder of the tax paid for the year.

Taxation of Non-residents

A non-resident is liable to the payment of income tax if he was employed or was carrying on business in Canada during a taxation year. The expression "carrying on business in Canada" includes: (1) maintaining a permanent establishment in Canada; (2) processing goods even partially in Canada; and (3) entering into contracts in Canada.

The taxable income of a non-resident individual derived from carrying on business in Canada or from employment in Canada is taxed under the same schedule of rates as Canadian resident individuals, and non-resident corporations deriving income from carrying on business in Canada are taxed on their taxable income attributable to operations in Canada at the same rates as Canadian resident corporations. (Tax treaties with some countries provide certain exemptions from tax for remuneration for services performed in this country by residents or employees of the other country.)

Furthermore, the Income Tax Act provides for a tax at the rate of 15 p.c. on certain forms of income going from Canada to non-resident persons. It applies to interest, dividends, rentals, royalties, income from a trust or estate and alimony. This 15-p.c. tax applies whether the income goes to non-resident individuals or corporations. The rate on royalties on motion picture films is only 10 p.c. This tax is withheld at the source by the Canadian payer. It is an impersonal tax levied without regard to the status or other income of the non-resident recipient. Non-residents who receive only this kind of income from Canada do not file tax returns in Canada.

Special Tax on Branch Businesses

Profits earned in Canada by a non-resident corporation carrying on business through a branch or permanent establishment in Canada are subject to an additional tax of 15 p.c. This tax is imposed on profits attributable to the branch after deducting therefrom Canadian federal and provincial income taxes and an allowance in respect of the net increase in capital investment in property in Canada.

Gift Tax

The Income Tax Act levies a tax upon gifts. The rates range from 10 p.c. on an aggregate taxable value of \$5,000 or under to 28 p.c. on an aggregate taxable value of over \$1,000,000. Exemptions include complete exemption of gifts of \$1,000 or less and a general deduction of \$4,000 from aggregate taxable value of gifts in the year.

Estate Tax

This tax applies to property passing, or deemed to pass, at death. All the property of persons who were domiciled in Canada before their death must be taken into consideration no matter where that property is situated; for persons dying domiciled outside of Canada, only their property situated in Canada is subject to tax.

In computing the tax of a Canadian domiciliary the value of the whole estate is first determined. Once the aggregate value of the estate has been determined, estate debts and certain expenses may be deducted. From the resulting "aggregate net value", there may be deducted the amount of a basic exemption, which is increased where the deceased leaves a widow or dependent child, and also the amount of any bequests to charitable organizations in Canada. After these deductions, the amount remaining is the "aggregate taxable value" to which is applied the tax rates. From the tax so calculated may be deducted: (1) a tax abatement in respect of property situated in a province that levies a succession duty; (2) a credit for gift tax paid on gifts made within three years of death (the value of which must be included in the aggregate net value of the estate); and (3) a credit for foreign taxes.

No estate valued at less than \$50,000 is subject to estate tax. This \$50,000 is not an exemption but the starting point for tax. The estate tax must not reduce the value of an estate after tax to less than \$50,000. The basic deductible exemption which applies to all estates of Canadian domiciliaries is \$40,000. This basic exemption of \$40,000 is increased to \$60,000 in respect of a deceased male survived by a spouse, or in respect of a deceased female survived by an incapacitated spouse and a dependent child. In both cases, there is an additional exemption of \$10,000 for each surviving dependent child (under 21). Finally, the basic exemption of \$40,000 is increased by \$15,000 for every surviving dependent child made an orphan by the death of the deceased.

The tax on the estates of Canadian domiciliaries is calculated by applying a graduated scale of rates. For an aggregate taxable value of \$5,000 or less the rate is 10 p.c., for an aggregate taxable value of \$100,000 the tax is \$19,000, and anything between \$100,000 and \$150,000 is taxed at 24 p.c. At \$2,000,000 of taxable value the tax is \$816,500 and the excess over \$2,000,000 is chargeable at the highest rate of 54 p.c.

As already stated, there is an abatement from federal estate taxes otherwise payable, in respect of provincial succession duties. Generally, the abatement is a deduction of 50 p.c. from the federal tax otherwise payable in respect of property situated in a province that levies succession duties.

The property situated in Canada of a deceased person not domiciled in Canada is subject to estate tax at a flat rate of 15 p.c. No deduction is allowed against the assessed value of such property except for debts specifically chargeable to it. However, there is a special provision that exempts all such property of less than \$5,000 value and also provides that the tax must not reduce the value of the property to less than \$5,000. (A new Estate Tax Convention between Canada and the United States ratified recently increases this figure to \$15,000; the change is retroactive to Jan. 1, 1959.) Where property is subject to provincial duties the 15-p.c. tax is abated by 50 p.c.

Excise Taxes

The Excise Tax Act levies a general sales tax and special excise taxes. Both the sales tax and the special excise taxes are levied on goods imported into Canada and on goods produced in Canada. They are not levied on goods exported.

General Sales Tax. The sales tax, which is at the rate of 8 p.c., is levied on the manufacturer's sale price of goods produced or manufactured in Canada or on the duty-paid

value of goods imported into Canada. For alcoholic beverages and tobacco products the sale price for purposes of the sales tax includes excise duties levied under the Excise Act referred to below. An old age security tax of 3 p.c. is levied on the same basis as the 8-p.c. tax bringing the total sales tax to 11 p.c.

Many classes of goods are exempt from sales tax. One important category is comprised of machinery and apparatus used in the process or manufacture or production of goods. The equipment to be exempt must enter directly into production. Thus, a stamping or cutting machine used in a factory is exempt from sales tax while office equipment or delivery equipment used by the same manufacturer is not. This exemption was established to reduce to a minimum the effect of the tax as a cost of production. Similarly, most equipment used by farmers, fishermen, loggers and mining companies is also exempt.

Most building materials, foodstuffs and fuels for lighting or heating are exempt from the tax as well as articles and materials used by public hospitals. The products of farms, forests, mines and fisheries are, to a large extent, exempt. Finally, a variety of items are exempt from sales tax when purchased by municipalities. These and other exemptions are set forth in schedules to the Excise Tax Act.

Special Excise Taxes.—The Excise Tax Act also provides for a number of special excise taxes which are in addition to the sales tax. Where these are *ad valorem* taxes they are levied on exactly the same price or duty-paid value as the general sales tax. Articles subject to special excise taxes include jewellery, cosmetics, toilet articles, radios, record players and television sets. Tobacco products and wines are also taxed under the Excise Tax Act.

The special excise taxes levied at present are listed as follows:—

Cigarettes.....	2½ cents per 5 cigs.
Cigars.....	15 p.c. ad valorem
Jewellery, including clocks, watches, jewellery, articles of ivory, amber, shell, precious or semi-precious stones, goldsmiths' and silversmiths' products except gold-plated or silver-plated ware for the preparation or serving of food or drink.....	10 p.c. ad valorem
Lighters.....	the greater of 10 cents per lighter or 10 p.c. ad valorem
Playing cards.....	20 cents per pack
Radios.....	the greater of \$2 per radio or 15 p.c. ad valorem
Phonographs and television sets.....	15 p.c. ad valorem
Tubes for radios, phonographs and television sets, not including television picture tubes, priced under \$5 per tube.....	the greater of 10 cents per tube or 15 p.c. ad valorem
Television set picture tubes.....	15 p.c. ad valorem
Slot machines—coin, disc or token-operated games or amusement devices....	10 p.c. ad valorem
Matches.....	10 p.c. ad valorem
Tobacco—pipe tobacco, cut tobacco and snuff.....	80 cents per lb.
Tobacco pipes, cigar and cigarette holders and cigarette rolling devices.....	10 p.c. ad valorem
Toilet articles, including cosmetics, perfumes, shaving creams, antiseptics, etc.	10 p.c. ad valorem
Wines—*	
Wines of all kinds containing not more than 7 p.c. absolute alcohol by volume.....	25 cents per gal.
Non-sparkling wines containing more than 7 p.c. absolute alcohol by volume but not more than 40 p.c. proof spirit.....	50 cents per gal.
Sparkling wines.....	\$2.50 per gal.
Insurance premiums paid to British or foreign companies not authorized to transact business in Canada or to non-resident agents of authorized British or foreign companies.....	10 p.c. of net premium for property, surety, fidelity and liability insurance. (Most other kinds of insurance are exempt.)
Electric power exported from Canada.....	3/100 of one cent per kwh.

* These taxes apply only to wines manufactured in Canada. The customs tariff on wines includes a levy to correspond to these taxes on domestic production.

All the foregoing items, except the last two, are also subject to the general sales tax of 8 p.c. and the old age security tax of 3 p.c. Cigarettes, cigars and tobacco are subject to further taxes under the Excise Act (referred to as excise duties).

Excise Duties

The Excise Act levies taxes (referred to as excise duties) upon alcohol, alcoholic beverages and tobacco products produced in Canada. These duties are not levied on imported goods but the customs tariff on these products includes a levy to correspond to the duties levied on domestic production. These duties are not levied on goods exported.

Spirits.—The duties are on a per-gallon basis in proportion to the strength of proof of the spirits. These duties do not apply to denatured alcohol intended for use in the arts and industries, or for fuel, light or power, or for any mechanical purpose. The various duties are as follows:—

On every gallon of the strength of proof distilled in Canada.....	\$13.00
On every gallon of the strength of proof used in the manufacture of—	
Medicines, extracts, pharmaceutical preparations, etc.....	\$1.50 per gal.
Approved chemical compositions.....	15 cents per gal.
Spirits sold to a druggist and used in the preparation of prescriptions.....	\$1.50 per gal.
Imported spirits when taken into a bonded manufactory in addition to other duties.....	30 cents per gal.

Canadian Brandy.—Canadian brandy is a spirit distilled exclusively from juices of native fruits without the addition of sweetening materials. It is subject to a duty of \$11 per gal.

Beer.—All beer or other malt liquor is subject to a duty of 38 cents per gal.

Tobacco, Cigars and Cigarettes.—The excise duties make up nearly as large a part of the total tax on tobacco products as the special excise taxes which have already been described. The rates of duty are as follows:—

On manufactured tobacco of all descriptions, except cigarettes.....	35 cents per lb.
Cigarettes weighing not more than 3 lb. per thousand (nearly all of the cigarettes used in Canada are of this type).....	\$4.00 per thousand
Cigarettes weighing more than 3 lb. per thousand.....	\$5.00 per thousand
Cigars.....	\$2.00 per thousand
Canadian raw leaf tobacco when sold for consumption.....	10 cents per lb.

Combined Effect of Excise Taxes and Excise Duties on Tobacco Products

Bringing together the taxes imposed on tobacco products under the Excise Tax Act and the duties imposed under the Excise Act gives the following total taxes:—

Cigarettes.....	\$9.00 per thousand (or 18 cents per pack of 20 cigarettes) plus the 11-p.c. sales tax on the manufacturer's sale price
Manufactured tobacco.....	\$1.15 per lb. plus the 11-p.c. sales tax on the manufacturer's sale price
Cigars.....	\$2.00 per thousand plus the 15-p.c. special excise tax and the 11-p.c. sales tax on the manufacturer's sale price.

Customs Duties*

Most goods imported into Canada are subject to customs duties at various rates as provided by tariff schedules. Customs duties, which once were the chief source of revenue for the country, have declined in importance as a source of revenue to the point where they provide only about 10 p.c. of the total. Quite apart from its revenue aspects, however, the Tariff still occupies an important place as an instrument of economic policy.

* See also pp. 993-995.

The Canadian Tariff consists mainly of three sets of rates, namely, British Preferential, Most-Favoured-Nation and General. The British Preferential rates are, with some exceptions, the lowest rates. They are applied to imported dutiable commodities shipped directly to Canada from countries within the British Commonwealth. Special rates lower than the ordinary preferential duty are applied on certain goods imported from designated Commonwealth countries.

The Most-Favoured-Nation rates apply to goods from countries that have been accorded tariff treatment more favourable than the General Tariff but which are not entitled to the British Preferential rate. Canada has Most-Favoured-Nation arrangements with almost every country outside the Commonwealth. The most important agreement providing for the exchange of Most-Favoured-Nation treatment is the General Agreement on Tariffs and Trade.

The General Tariff applies to imports from countries not entitled to either the Preferential or Most-Favoured-Nation treatment. Few countries are in this category and in terms of trade coverage are negligible.

In all cases where the tariff applies there are provisions for drawbacks of duty on imports of materials used in the manufacture of products later exported. The purpose of these drawbacks is to assist Canadian manufacturers to compete with foreign manufacturers of similar goods. There is a second class of drawbacks known as "home consumption" drawbacks. These apply to imported materials used in the production of specified classes of goods manufactured for home consumption.

The tariff schedules are too lengthy and complicated to be summarized here but the rates which apply on any particular item may be obtained from the Department of National Revenue which is responsible for administering the Customs Tariff.

Subsection 2.—Provincial Taxes

All of Canada's ten provinces impose a wide variety of taxes to raise the revenue necessary for provincial purposes. All provinces now levy a tax on the income of individuals and corporations who are residents within their boundaries or who derive income from activities or operations carried out therein. Only the Provinces of Ontario and Quebec impose special taxes on corporations or a tax on property passing at death. Under the terms of the existing federal-provincial fiscal arrangement, the Federal Government makes payments called "equalization payments" to some provinces in recognition of the fact that the potential tax revenue from the fields of income tax, death duties and natural resource revenue in those provinces, measured on a per capita basis, is lower than an agreed upon level. For some provinces these payments constitute a very important source of revenue.

Some of the more important provincial levies are reviewed briefly below.

Individual Income Tax

All provinces levy a tax on the income of individuals who reside within their boundaries or who earn income therein. In nine of the ten provinces, these taxes are computed as a percentage of federal income tax otherwise payable at full federal rates and are collected by the Federal Government on behalf of these provinces. In Quebec, provincial income tax is levied at graduated rates that progress from 2.5 p.c. on the first \$1,000 of taxable income to a maximum of 13.2 p.c. on the excess over \$400,000. The determination of taxable income for Quebec tax is based on exemptions and deductions similar to those for federal tax. The Province of Quebec collects its own tax.

The percentages that provincial income tax liability is of federal income tax liability computed at full federal rates for 1962 are: Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Alberta and British Columbia each 16 p.c., Quebec approximately 18 p.c. and Manitoba and Saskatchewan each 22 p.c. The Provinces of Quebec, Manitoba and Saskatchewan levy provincial income taxes in excess of the 16-p.c. abatement of federal income tax allowed by the Federal Government.

Corporate Income Tax

All provinces levy a tax on the profits of corporations derived from activities carried out within their boundaries. In all provinces except Ontario and Quebec the provincial tax is imposed on taxable income in the province determined on the same basis as for federal income tax. In Ontario and Quebec the determination of taxable profits for purposes of provincial tax follows closely the federal rules. The rate of tax in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Alberta and British Columbia is 9 p.c. The rate that applies in Manitoba and Saskatchewan is 10 p.c., in Ontario 11 p.c. and in Quebec 12 p.c.

Four of the ten provinces levy corporate income taxes at rates in excess of the abatement allowed by the Federal Government. This abatement is equal to 9 p.c. of corporate profits except in Quebec where it is 10 p.c. (see p. 1020). All provinces except Ontario and Quebec have signed agreements for the collection of their income taxes by the Federal Government.

Alcoholic Beverages

Generally speaking the sale of spirits in all provinces is made through provincial agencies operating as boards or commissions which exercise monopolistic control over this commodity. The provincial mark-up over the manufacturers' price is the effective means of taxation. Beer and wine may be sold by retailers or government stores depending on the province but in all cases they contribute to provincial revenues.

Retail Sales Taxes

Retail sales taxes are levied on the final purchaser or user and are collected by the retailer. Eight provinces now levy this type of tax at rates varying between 3 p.c. and 5 p.c. These provinces are Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan and British Columbia. In the Province of Quebec, the general rate is 4 p.c. but the province allows its municipalities to levy an additional 2 p.c. for municipal purposes.

Amusement Taxes

Each of the provinces with the exception of Alberta and Saskatchewan has a tax on admission to places of entertainment. In addition, there is generally a licence fee imposed on the operator or owner of these amusement places. The tax on admissions is within the range of 5 p.c. to 13 p.c.

Gasoline and Diesel Fuel Oil Taxes

Each of the ten provinces imposes a tax on the purchase of gasoline by motorists and truckers. The rates vary from 12 cents per gallon in Alberta to 19 cents in Nova Scotia and Newfoundland. The amount of tax borne by one gallon of motor vehicle fuel in each province is as follows:—

	<i>Gasoline</i>	<i>Diesel Fuel</i>		<i>Gasoline</i>	<i>Diesel Fuel</i>
	cts.	cts.		cts.	cts.
Newfoundland.....	19	19	Ontario.....	13	18.5
Prince Edward Island...	16	16	Manitoba.....	14	17
Nova Scotia.....	19	27	Saskatchewan.....	14	17
New Brunswick.....	18	23	Alberta.....	12	14
Quebec.....	13	18.5	British Columbia.....	13	15

Motor Vehicle Licences and Fees

Each province also levies a fee on the annual registration of motor vehicles. This registration is compulsory and each vehicle is issued with licence plates for the year. The rates of this licence fee vary from province to province. The amount to be paid may be assessed in relation to the weight of the car, the number of cylinders of the engine, or at a

flat rate. The operator or the driver of a motor vehicle must also register annually and pay a fee for a new driver's licence; in Alberta and British Columbia, drivers' licences must be renewed every five years at a cost of \$5. Alberta, in addition to registration fees, imposes a mileage tax on buses, based on mileage operated outside city limits by public service vehicles carrying passengers.

Taxes on Mining Operations

All provinces except Prince Edward Island levy taxes of various kinds on mining operations. All provinces except Prince Edward Island and Alberta impose a tax on the income of firms engaged in mining operations in general or in specific kinds of mining operations. The Provinces of British Columbia, Alberta, Saskatchewan, Manitoba and Ontario impose a tax on the assessed value of minerals or a flat rate per acre of mining property.

Tax on Logging Operations

The Provinces of British Columbia and Ontario levy a tax on the income from logging operations of individuals, partnerships, associations or corporations engaged in this activity. In British Columbia the tax is 10 p.c. on income in excess of \$25,000. In Ontario, the rate is 9 p.c. on income in excess of \$10,000.

Business Taxes

The Province of Quebec imposes a tax of one-tenth of 1 p.c. on paid-up capital of corporations while Ontario levies a similar tax at the rate of one-twentieth of 1 p.c.

The Provinces of Quebec and Ontario have a place-of-business tax. In Quebec the tax ranges from \$20 to \$50 for each place of business with the higher amounts being levied in the cities of Montreal and Quebec. In Ontario, the tax for each permanent establishment is the lesser of \$50 or one-twentieth of 1 p.c. of paid-up capital of the corporation involved, but the total of the capital tax and the place-of-business tax cannot be less than \$20. Ontario also imposes an office tax of \$50 on every corporation that does not maintain a permanent establishment in the province but merely maintains a buying office, or merely holds certain provincial licences, or merely holds assets, or is represented by a resident employee or agent who is not deemed to operate a permanent establishment of the corporation.

Both provinces levy special taxes on certain kinds of companies such as banks, railway companies, express companies, trust companies, insurance companies and sleeping-car, parlour-car, and dining-car companies. In Ontario these special taxes and the capital and place-of-business taxes are payable only to the extent that they exceed the corporate income tax otherwise payable.

The Province of Prince Edward Island charges special annual licence fees to most insurance companies, banks, acceptance companies, chain theatres and chain stores, steamship companies, telephone, telegraph and electric light companies and brokers, as well as nominal licence fees to other incorporated companies, the latter being similar to filing fees in other provinces.

Land Transfer Taxes

The Provinces of Alberta and Ontario levy a tax based on the price at which ownership to land is transferred. In Alberta the rate is one-fifth of 1 p.c. up to \$5,000 and one-tenth of 1 p.c. over \$5,000; in Ontario a straight one-fifth of 1 p.c. tax is imposed. In Alberta the tax is in the form of an assurance fee, and an additional fee of 25 cents per \$1,000 is charged for registration of mortgages. In Quebec a tax of $2\frac{1}{2}$ p.c. of the purchase price is imposed only when property is transferred under the Bankruptcy or Winding-Up Acts.

The Provinces of British Columbia, Saskatchewan and Manitoba do not have a land transfer tax but have an equivalent in the land title fees which are based on land values.

Tax on Security Transfers

The Provinces of Ontario and Quebec levy a tax on the sale price of securities transferred; the rates in each province are:—

Shares sold, transferred or assigned valued at—

Under \$1.....	1/10th of 1 p.c. of value
\$ 1 to \$ 5.....	1/4 cent per share
\$ 5 to \$ 25.....	1 cent per share
\$25 to \$ 50.....	2 cents per share
\$50 to \$ 75.....	3 cents per share
\$75 to \$150.....	4 cents per share
Over \$150.....	4 cents per share plus 1/10th of 1 p.c. of value in excess of \$150

Bonds and debentures..... 3 cents for every \$100 or fraction thereof of par value.

Premium Income of Insurance Companies

All ten provinces impose a tax of 2 p.c. on the premium income of insurance companies relative to risks incurred in the province.

Succession Duties

Only the Provinces of Ontario and Quebec levy succession duties. These duties are a tax upon the right to succeed to property and are assessed upon the interest or benefit passing at death to an heir or beneficiary. Both provinces impose succession duties on all property situated in the province belonging to the deceased and passing at his death whether the deceased was domiciled in the province or elsewhere. Personal property wherever situated of a person dying domiciled within the province is also liable if passing to a successor resident or domiciled in the province.

The rates of succession duty are governed by the value of the estate, the relationship of the beneficiary to the deceased and the amount going to any one person. The rate of tax will increase as the degree of relationship between the deceased and his successor becomes more remote.

Provincial Property Taxes

In unorganized (non-municipal) areas, British Columbia levies property taxes at varying rates according to class for provincial revenue. Improved, forest and tree-farm lands are taxed at 1 p.c. of assessed value; farm land at one-half of 1 p.c.; wild land at 3 p.c.; coal land at 2 p.c. (non-operating) or 7 p.c. (operating); and timber land at 1½ p.c.

Subsection 3.—Municipal Taxes

The municipalities in Canada levy taxes on the owners of property situated within their jurisdiction according to the assessed value of such property. Methods of determining assessed value vary widely but for taxation purposes it is generally considered to be a percentage of the actual value. The revenues from such taxes are used to pay for street maintenance, schools, police and fire protection, snow removal in certain communities and other community services. Special levies are sometimes made on the basis of street frontage to pay for local improvements to the property such as sidewalks, roads, and sewers. Not only is there a widespread difference in the bases used for property tax but there is also a wide variety of rates applied depending on the municipality.

In addition to the taxes described above, municipalities usually impose a charge for the water consumption of each property holder or a water tax based upon the rental value of the property occupied. There are no municipal income taxes although certain localities have retained the use of a poll tax. In Newfoundland, Quebec and Saskatchewan municipalities are empowered to levy an amusement tax on the admission of persons to places of amusements. This practice differs from that of the other provinces where the amusement tax is generally a provincial preserve. Electricity and gas are taxed at the consumer level

in some western municipalities while coal and fuel oil for heating purposes are chargeable in urban areas of Newfoundland. Telephone subscribers are subject to a special levy in Montreal while certain Ontario municipalities impose a tax on the gross receipts of telephone companies.

In most municipalities, a tax is levied directly on the tenant or the operator of a business. In general, business tax rates are lower than those applying to property. Three bases of assessment are in use—a fraction of the property assessment, the annual rental value of the premises, or the area of the premises. Certain municipalities may charge a licence fee instead of a business tax while others will charge both a licence fee and business tax. In Nova Scotia, all but one of the municipalities tax personal property (stock in trade, equipment, etc.) the same as real property.

Subsection 4.—Miscellaneous Levies

These are not generally referred to as taxes but they are similar to taxes in many ways.

Unemployment Insurance

For the past twenty-two years, a national program of unemployment insurance has been operating in Canada. Essentially, it provides relief to those qualified persons who temporarily find themselves without work. It is administered by a federal commission appointed for this purpose and financed by equal contributions from employers and employees plus a contribution from the Federal Government. The amount paid into the fund by employee and employer is directly proportional to the weekly wages of the employee. The rates of contributions, together with statistics on the operation of the program, are given at pp. 735-741.

Workmen's Compensation

Legislation in force in all provinces provides compensation for personal injury suffered by workmen as a result of industrial accidents. In general, these provincial statutes establish an accident fund administered by a Board to which employers are required to contribute at a rate proportional with the hazards of the industry. See also pp. 743-745.

Hospital Insurance

A federal-provincial hospital insurance plan has now been adopted by each of the ten Canadian provinces. Under this arrangement, the Federal Government pays approximately one-half of the cost of hospitalization for patients who are participants under the plan. The provinces meet the rest of the cost. Provincial revenues for this purpose are raised by various means. The Province of Quebec has increased its personal and corporation income tax. Certain provinces require the deduction of a monthly premium from the wages of their residents as a contribution or premium for the plan. In such provinces non-salaried people must also pay the premium directly if they wish to be covered by the plan. In some other provinces the proceeds of a retail sales tax are earmarked in whole or in part for the support of the hospital plan. See also pp. 224-229.

Section 3.—Federal Public Finance

Subsection 1 of this Section contains tables dealing with statistics of the Federal Government prepared as far as possible in accordance with the classifications, concepts and definitions used in the preparation of provincial and municipal finance statistics. These tables differ from the information presented in Subsection 2 in that the latter has been extracted directly from the *Public Accounts*. Detailed reports published by the Dominion Bureau of Statistics provide reconciliations of revenue, expenditure and debt as set out in Subsections 1 and 2. The *Public Accounts* presentation is retained for continuity and also because there is interest in and use for information on this basis.

Historical Data.—A sketch of public finance from the French régime to the outbreak of World War I appears in the 1941 Year Book, pp. 742-743. Detailed sketches of tax changes from 1914 to 1938 will be found in issues of the Year Book beginning with the 1926 edition. An outline of the financing of Canada's war effort, including the more important changes in taxation during the war years from 1939 to 1945, is given in the 1945 Year Book, pp. 918-923. The postwar financial policy of the Government of Canada is outlined in the 1954 Year Book at pp. 1061-1064, and tax changes proposed in subsequent Budgets are outlined briefly in the respective Year Books.

The 1962-63 Budget.—The Budget presented to the fifth session of the 24th Parliament on Apr. 10, 1962 did not change personal income tax rates but the exemption for children qualified for family allowance was raised from \$250 to \$300 each, and for other dependants from \$500 to \$550.

Benefits were announced for corporations engaged in manufacturing or processing (except those whose principal business is shipbuilding, mining, logging or the operation of oil or gas wells) in the form of a reduction in tax on profits derived from increased sales calculated in accordance with prescribed methods. These benefits consist of cancellation of 50 p.c. of the tax on the first \$50,000 of taxable income arising from increased sales and cancellation of 25 p.c. of the tax on any additional income arising from increased sales. Corporations undertaking increased industrial research in Canada are permitted to deduct 150 p.c. of their increased expenditures on scientific research for industrial purposes when computing taxable income.

Minor tariff changes were announced, consisting of reductions or extensions of free entry provisions due to expire shortly.

Subsection 1.—DBS Statistics of Federal Public Finance

Revenue and Expenditure.—Table 4 shows details of net general revenue of the Federal Government for the years ended Mar. 31, 1959 and 1960.

4.—Details of Net General Revenue of the Federal Government, Years Ended Mar. 31, 1959 and 1960

Source	1959	1960	Source	1959	1960
	\$'000	\$'000		\$'000	\$'000
Taxes—					
Income—					
Corporations ¹	1,075,878	1,234,216	Privileges, Licences and Permits—		
Individuals ¹	1,499,849	1,752,194	Natural resources.....	10,878	5,924
Interest, dividends and other income going abroad	61,213	73,353	Other.....	18,571	20,221
General sales ¹	868,114	1,002,658	Sales and services other than institutional.....	56,910	46,843
Excise Duties and Special Excise Taxes—			Fines and penalties.....	1,214	1,462
Alcoholic beverages.....	179,264	192,631	Exchange fund profits.....	18,026	25,513
Tobacco.....	288,581	331,069	Receipts from government enterprises.....	99,924	88,366
Automobiles.....	59,308	64,281	Bullion and coinage.....	4,518	5,617
Other.....	29,735	32,677	Postal service.....	183,380	193,660
Customs import duties.....	486,508	525,722	Other revenue.....	11,683	9,022
Succession duties and estate taxes.....	72,535	88,431	Non-revenue and surplus receipts.....	37,620	40,610
Other.....	1,213	1,373			
Totals, Taxes.....	4,622,198	5,298,608	Totals, Net General Revenue.....	5,065,524	5,735,846

¹ Includes old age security taxes.

Table 5 gives details of expenditure by function for the years ended Mar. 31, 1959 and 1960 and Table 6 shows the amounts paid by the Federal Government to provincial governments and municipal corporations in the year ended Mar. 31, 1960.

**5.—Details of Net General Expenditure of the Federal Government, Years Ended
Mar. 31, 1959 and 1960**

Function	1959	1960	Function	1959	1960
	\$'000	\$'000		\$'000	\$'000
Defence services and mutual aid.....	1,665,274	1,544,201	Education—		
Veterans' pensions and other benefits.....	295,388	293,106	Indian and Eskimo schools.....	29,753	33,097
General Government—			Universities, colleges and other schools.....	33,434	34,480
Executive and administrative.....	241,628	234,374	Other.....	1,679	1,902
Legislative.....	11,438	8,516	Totals, Education.....	64,866	69,479
Research, planning and statistics.....	8,916	8,681	Natural Resources and Primary Industries—		
Totals, General Government.....	261,982	251,571	Fish and game.....	18,681	20,821
Protection of Persons and Property—			Forests.....	11,078	7,589
Law enforcement.....	6,969	7,150	Land, settlement and agriculture.....	174,542	192,406
Corrections.....	16,008	18,943	Minerals and mines.....	34,187	40,257
Police protection.....	42,460	41,698	Water resources.....	1,498	1,671
Other.....	7,138	8,394	Other.....	23,323	23,666
Totals, Protection of Persons and Property.....	72,575	76,185	Totals, Natural Resources and Primary Industries.....	263,309	286,410
Transportation—			Trade and industrial development.....	10,103	9,499
Air.....	77,943	81,695	National Capital area planning and development.....	9,561	15,200
Road.....	89,343	108,585	Loss on foreign exchange.....	-1,058	161
Rail.....	22,782	31,707	Debt Charges (excluding debt retirement)—		
Water.....	119,297 ¹	122,442	Interest.....	504,311	609,234
Other.....	2,258	2,626	Other.....	41,410	47,832
Totals, Transportation.....	311,623 ¹	347,055	Totals, Debt Charges (excluding debt retirement).....	545,721	657,066
Communications — telephone, telegraph and wireless....	25,662	29,223	Payments to government enterprises.....	161,780 ¹	154,252
Health—			Payments to Provincial Governments—		
General.....	2,707	3,726	Tax-sharing arrangements....	399,100	461,341
Public.....	33,060	37,163	Share of income tax on power utilities.....	8,683	4,753
Medical, dental and allied services.....	5,082	5,265	Subsidies.....	60,197	53,774
Hospital care.....	88,846	180,635	Grants to Municipal Governments in lieu of taxes.....	22,004	22,605
Totals, Health.....	129,695	226,789	Totals, Payments to Provincial and Municipal Governments ²	489,984	542,473
Social Welfare—			Citizenship and immigration..	17,877	15,324
Aid to aged persons ¹	589,594	605,348	External affairs.....	15,580	16,005
Aid to blind persons.....	4,295	4,256	International co-operation and assistance.....	62,523	79,654
Aid to unemployed employables and unemployables..	39,265	56,218	Housing research and slum clearance.....	4,266	1,712
Family allowances.....	477,732	494,138	Civil defence.....	3,816	4,246
Labour.....	2,707	2,628	Postal service.....	183,536	191,806
National employment and unemployment insurance services.....	73,357	82,456	Royal Canadian Mint.....	1,265	1,245
Other.....	14,812	16,896	Other.....	72,147	87,934
Totals, Social Welfare.....	1,201,762	1,261,940	Non-expense and Surplus Payments.....	291	499
Recreational and Cultural Services—			Totals, Net General Expenditure.....	5,891,638	6,188,843
Archives, art galleries, museums and libraries.....	1,956	3,350			
Parks.....	13,089	15,016			
Other.....	7,065	7,442			
Totals, Recreational and Cultural Services.....	22,110	25,808			

¹ Includes pensions paid from the Old Age Security Fund. purposes are classified by function.

² Unconditional payments; grants for specific

6.—Payments by the Federal Government to Provincial Governments and Municipal Corporations, Year Ended Mar. 31, 1969

Payee and Purpose	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	All Prov- inces	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Provincial Governments														
Tax-sharing arrangements.....	20,017	4,390	31,945	26,298	68,631	106,211	39,452	40,232	55,370	67,853	460,399	420	522	461,341
Share of income tax on power utilities.....	177	36	233	100	1,504	1,043	20	51	1,239	350	4,753	—	—	4,753
Subsidies.....	17,069	3,157	9,557	9,179	3,242	3,641	2,065	2,098	2,400	1,281	53,689	40	45	53,774
Grants-in-Aid and Shared-Cost Contributions—														
Trans-Canada Highway.....	5,353	1,172	3,129	8,121	—	18,436	1,725	33	1,066	14,229	53,264	—	—	53,264
Other transportation.....	339	1,127	2,729	1,016	436	1,356	956	1,005	1,917	1,664	12,545	—	—	12,545
Health—														
Hospital insurance and diagnostic services	4,708	447	8,163	4,575	—	71,893	11,324	13,378	15,699	20,406	150,593	—	—	150,593
General Health Grants—														
Hospital construction.....	200	132	89	210	4,686	6,614	536	642	402	1,430	14,941	—	—	14,941
General public health.....	256	84	449	332	2,098	2,924	509	462	653	870	3,637	—	32	8,069
Tuberculosis control.....	131	38	187	159	1,433	809	202	202	254	309	7,766	29	8	7,766
Mental health.....	182	83	375	301	2,242	2,130	351	393	985	642	7,684	7	—	7,684
Cancer control.....	2	13	133	74	1,123	1,079	184	187	254	271	3,820	—	8	3,328
Laboratory and radiological services.....	190	37	100	106	1,961	269	170	95	56	93	3,013	—	—	3,013
Other general health grants.....	101	34	179	175	1,515	1,243	324	270	266	406	4,543	—	16	4,559
Other health.....	3	1	13	9	84	32	8	9	6	7	172	—	5	177
Old age assistance.....	1,736	205	1,619	1,789	10,689	6,608	1,581	1,757	1,956	2,354	30,294	15	40	30,349
Disabled persons' allowances.....	349	198	759	596	8,307	3,859	433	433	537	575	16,046	1	4	16,051
Unemployment assistance.....	3,670	113	654	351	7,791	14,029	2,380	1,828	2,072	7,246	40,134	—	33	40,167
Other social welfare.....	210	44	390	366	1,494	949	207	221	237	270	4,388	—	15	4,405
Countryside and picnic area development.	53	15	52	58	—	633	179	290	222	392	1,894	7	5	1,906
Other education.....	193	133	462	423	—	3,082	420	1,263	865	1,291	8,131	3	16	8,151
Forests.....	2	—	11	—	3	198	12	10	4	18	958	—	—	285
Lands—settlement and agriculture.....	76	29	109	88	—	1,252	210	310	365	1,372	3,797	—	—	3,797
Other natural resources.....	149	67	109	116	901	201	340	3,043	1,688	1,115	6,729	—	—	6,729
Other.....	44	7	435	381	1,426	2,609	474	403	1,357	1,074	528	—	6	528
Totals, Grants-in-Aid, etc.....	17,947	3,979	20,146	19,246	46,389	140,421	22,598	26,274	30,877	54,984	382,861	64	188	383,113
Totals, Paid to Provincial Governments.....	55,210	11,562	61,881	54,823	119,766	251,316	64,135	68,655	89,886	124,468	901,792	524	755	902,381
Municipal Corporations														
Grants in lieu of taxes on federal property.....	76	113	2,175	904	3,996	9,801	1,259	747	1,805	1,875	22,551	33	21	22,605
Special grants.....	—	—	—	1,656	—	250	—	—	—	—	1,906	—	—	1,906
Grants-in-Aid and Shared-Cost Contributions—														
Transportation.....	—	—	4	10	477	1,232	20	347	7	98	2,104	—	—	2,104
Health.....	—	—	—	—	—	136	9	—	290	258	533	—	—	533
Schools operated by local authorities.....	—	—	—	—	5	112	30	480	—	68	862	—	—	862
Other.....	15	—	220	—	105	525	—	—	—	68	933	—	—	933
Totals, Paid to Municipal Corporations.....	91	113	2,399	2,570	4,483	12,056	1,318	1,574	1,902	2,283	28,889	33	21	28,943
Grand Totals.....	55,301	11,675	64,280	57,393	124,349	263,372	65,453	70,229	91,788	126,751	930,591	557	776	931,924

Debt.—In Table 7, direct debt represents total liabilities less sinking funds and indirect debt consists of guarantees of direct debt of other authorities by the Federal Government. Table 8 gives the gross bonded debt of the Federal Government and the average interest rates and terms of issue as at Mar. 31, 1958-60, together with place of payment.

7.—Direct and Indirect Debt (less Sinking Funds) of the Federal Government as at Mar. 31, 1958-60

Nature of Debt	1958	1959	1960
	\$'000	\$'000	\$'000
Direct Debt			
Funded Debt—			
Bonded debt.....	12,720,107	13,979,113	13,765,152
<i>Less</i> sinking funds.....	211,741	83,214	85,272
Net funded debt.....	12,508,366	13,895,899	13,679,880
Short-term treasury bills ¹	1,525,000	1,595,000	2,125,000
Savings deposits and certificates.....	34,896		
Accounts and other payables.....	749,445	830,398	967,621
Annuity, insurance and pension accounts.....	2,712,813	3,301,861	3,565,376
Other liabilities.....	264,616	339,638	347,206
Totals, Direct Debt (less Sinking Funds).....	17,795,136	19,962,796	20,685,083
Indirect Debt			
Guaranteed bonds or debentures.....	1,028,407	987,907	1,430,107
<i>Less</i> sinking funds.....			
Net guaranteed bonds or debentures.....	1,028,407	987,907	1,430,107
Guaranteed bank loans.....	165,732	139,646	189,203
Guaranteed insured loans under National Housing Act, 1954.....	1,394,635	2,054,319	2,671,918
Guarantees under Export Credits Insurance Act.....	68,371	54,668	97,456
Other guarantees.....	3,443	4,980	6,415
Totals, Indirect Debt (less Sinking Funds)².....	2,660,588	3,241,520	4,375,099
Totals, Direct and Indirect Debt (less Sinking Funds).....	20,455,724	23,204,316	25,060,182
	\$	\$	\$
Direct debt (<i>less</i> sinking funds) per capita.....	1,042	1,142	1,158
Indirect debt (<i>less</i> sinking funds) per capita.....	156	186	245

¹ Having a term of three months.
chartered banks in Bank of Canada.

² Included in "Other liabilities".

³ Excludes deposits of

8.—Gross Bonded Debt of the Federal Government, Average Interest Rate and Term of Issue, and Place of Payment as at Mar. 31, 1958-60

Item	1958	1959	1960
Bonded debt..... \$'000	12,720,107	13,979,113	13,765,152
Average interest rate..... p.c.	3.06	3.52	3.74
Average term of issue..... yrs.	15.35	13.32 ²	13.37
Place of Payment—			
Canada..... \$'000	12,368,296	13,777,302	13,563,341
New York..... "	300,000	150,000	150,000
London (England)..... "	51,811	51,811	51,811

Subsection 2.—Public Accounts Statistics of Federal Public Finance

Revenue and Expenditure.—Tables 9 and 10 show details of revenue and expenditure of the Federal Government for the fiscal years ended Mar. 31, 1960 and 1961, as presented in the *Public Accounts*.

9.—Revenue of the Federal Government, Years Ended Mar. 31, 1960 and 1961

SOURCE: *Public Accounts*

Revenue	1960	1961
	\$	\$
Tax Revenue—		
Customs import duties.....	525,722,158	498,698,211
Excise duties.....	335,207,406	344,944,857
Income tax.....	2,782,876,766	3,075,961,775
Personal ¹	1,566,643,704	1,711,159,673
Corporation ¹	1,142,879,702	1,276,628,880
On interest, dividends, rents, and royalties going abroad.....	73,553,560	88,173,822
Sales tax (net) ¹	732,658,330	720,617,274
Estate tax, including succession duties.....	88,430,705	84,879,372
Other taxes.....	287,444,573	290,675,097
Totals, Tax Revenue.....	4,752,339,938	5,015,776,586
Non-tax Revenue—		
Post Office.....	167,562,354	173,593,541
Return on investments ²	239,653,687	283,769,277
Bullion and coinage.....	5,429,778	8,445,677
Other.....	124,765,452	136,094,773
Totals, Non-tax Revenue.....	537,411,271	601,903,268
Grand Totals, Revenue.....	5,289,751,209	5,617,679,854

¹ Excludes tax credited to the Old Age Security Fund, the Bank of Canada.² Includes interest on investments and profits of

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1960 and 1961

SOURCE: *Public Accounts*

Expenditure	1960	1961
	\$	\$
Agriculture^{1,2}.....	227,420,395¹	264,915,215
Acreage payments to western grain producers.....	—	40,533,495
Freight assistance on western feed grains.....	23,796,342	19,173,973
Other ¹	203,624,053 ¹	205,208,747
Atomic Energy Control Board.....	30,114,125	38,892,905
Auditor General's Office.....	866,879	928,573
Board of Broadcast Governors.....	218,652	280,946
Canadian Broadcasting Corporation.....	63,945,984	66,766,203
Chief Electoral Officer.....	259,599	591,780
Citizenship and Immigration.....	54,916,725	61,049,383
Civil Service Commission.....	3,654,664	4,220,066
Defence Production.....	17,600,214	20,435,693
Capital assistance to defence industry.....	2,631,306	1,773,972
Other.....	14,968,908	18,661,721
External Affairs.....	97,220,924¹	103,023,405
Finance.....	1,420,155,128	1,460,027,110
Public Debt Charges—		
Interest on public debt.....	735,630,175	756,664,223
Annual amortization of bond discounts and commissions.....	45,412,222	38,907,402
Servicing of public debt.....	642,161	696,496
Cost of loan flotation.....	1,877,622	1,534,139
Totals, Public Debt Charges.....	783,462,190	797,602,265

For footnotes, see end of table, p. 1034.

10.—Expenditure of the Federal Government, Years Ended Mar. 31, 1960 and 1961—concluded

Expenditure	1960	1961
	\$	\$
Finance—concluded		
Provincial subsidies and tax-sharing payments.....	518,900,813	537,814,873
Government contribution to Civil Service Superannuation Account.....	40,001,080	41,444,858
Other.....	77,791,045	83,165,114
Fisheries.....	19,880,914	19,195,681
Forestry ¹	9,890,589	10,060,199
Governor General and Lieutenant-Governors.....	421,083	436,926
Insurance.....	1,237,533	1,309,674
Justice, including Penitentiaries.....	27,845,868	27,694,612
Labour.....	102,885,123	121,336,329
Unemployment Insurance Act, administration and Government contribution..	81,602,653	97,242,591
Other.....	21,282,470	24,093,738
Legislation.....	7,669,237	8,506,699
Mines and Technical Surveys.....	54,432,381	59,120,367
National Defence.....	1,516,572,454 ¹	1,517,530,583
Mutual Aid to NATO countries.....	40,757,323	50,283,158
Other.....	1,475,815,126	1,467,242,425
National Film Board.....	4,555,417	4,866,930
National Gallery.....	666,814 ¹	920,828
National Health and Welfare.....	816,702,790 ¹	887,146,990
General health grants to provinces.....	45,997,410	47,993,355
Family allowances.....	491,214,559	506,191,647
Old age assistance, blind persons' and disabled persons' allowances ²	50,596,994	51,205,049
Contributions under the Hospital Insurance and Diagnostic Services Act.....	150,593,446	189,368,503
Other ⁴	78,300,681 ¹	92,383,436
National Research Council.....	31,501,387	34,438,422
National Revenue.....	68,696,069	73,260,720
Northern Affairs and National Resources ³	74,346,187 ¹	74,295,902
Post Office.....	165,792,340	178,371,717
Privy Council, including Prime Minister's Office.....	1,417,903	1,850,166
Public Archives.....	745,329	842,304
Public Printing and Stationery.....	3,466,734	3,483,938
Public Works.....	217,876,413	200,891,585
Trans-Canada Highway.....	65,262,202	67,908,825
Other.....	152,614,211	142,982,760
Royal Canadian Mounted Police.....	52,444,264	56,023,194
Secretary of State.....	4,655,356	4,877,799
Trade and Commerce.....	18,033,719 ¹	21,763,612
Transport.....	296,446,971	356,446,853
Veterans Affairs.....	288,304,879	292,297,097
Grand Totals, Expenditure.....	5,702,861,053	5,958,100,946

¹ Includes Board of Grain Commissioners and payments in respect of the Canadian Wheat Board, the Prairie Grain Advance Payments Act and the Prairie Grain Provisional Payments Act, previously included in "Trade and Commerce".

² Prior to 1961, forestry expenditure was included in "Northern Affairs and National Resources" and "Agriculture"; 1960 expenditure is segregated here for comparison.

³ Pensions under the Old Age Security Act, 1951 (effective January 1952) are paid out of the Old Age Security Fund account and are not recorded under departmental expenditure.

⁴ Includes civil defence.

Statements of Assets and Liabilities.—Table 11 shows the statements of assets and liabilities of the Federal Government as they appear in the *Public Accounts* for the years ended Mar. 31, 1959-61.

11.—Statement of Assets and Liabilities of the Government of Canada, as at Mar. 31, 1959-61

SOURCE: Public Accounts

Item	1959	1960	1961
	\$	\$	\$
Assets			
Current Assets—			
Cash.....	640,459,071	565,436,461	486,759,770
Departmental Working Capital Advances and Revolving Funds.....	151,982,104	196,010,004	171,082,579
Securities held for the securities investment account.....	98,030,754	77,862,926	101,453,744
Other current assets.....	20,471,784	22,837,203	25,051,644
	910,943,713	862,146,594	784,347,737
Advances to the Exchange Fund Account.....	1,995,000,000	1,960,000,000	2,024,000,000
Sinking fund and other investments held for retirement of unmatured debt.....	83,214,185	85,272,230	17,017,981
Loans to and Investments in Crown Corporations—			
Canadian National Railways.....	1,468,178,945	1,207,808,404	1,092,589,707
Central Mortgage and Housing Corporation.....	1,003,576,336	1,318,683,413	1,510,711,116
National Harbours Board.....	145,631,907	161,397,831	172,769,613
Miscellaneous.....	653,673,770	758,771,898	851,662,760
	3,271,060,958	3,446,661,546	3,627,733,196
Loans to national governments.....	1,448,960,511	1,414,527,922	1,378,196,197
Other Loans and Investments—			
Canada's Subscription to Capital of—			
International Monetary Fund.....	293,284,543	528,728,889	543,696,621
International Bank for Reconstruction and Development...	70,864,349	70,864,349	73,680,062
Working capital advances to international organizations.....	2,245,148	2,059,265	1,722,095
Provincial governments.....	96,338,853	90,396,788	84,827,019
Soldier Settlement and Veterans' Land Act advances (less reserve for conditional benefits).....	151,000,010	151,626,032	166,092,206
Miscellaneous.....	69,322,706	90,796,089	152,087,804
	683,055,609	934,471,412	1,022,105,807
Securities held in trust.....	20,742,062	30,611,723	30,042,201
Deferred Charges—			
Unamortized loan flotation costs.....	147,430,776	150,993,027	130,741,328
Unamortized portion of actuarial deficiency in the super-annuation account and permanent services pension account.	465,300,000	465,300,000	602,961,000
	612,730,776	616,293,027	733,702,328
Suspense accounts.....	2,465	33,300	136,101
Capital assets.....	1	1	1
Inactive loans and investments.....	92,215,718	93,539,317	94,824,381
Totals, Assets	9,117,925,998	9,443,557,072	9,712,105,930
Less reserve for losses on realization of assets.....	546,384,065	546,384,065	546,384,065
Net Assets.....	8,571,541,933	8,897,173,007	9,165,721,865
Net debt.....	11,678,389,860	12,089,194,003	12,437,115,095
	20,249,931,793	20,986,367,010	21,602,836,960

**11.—Statement of Assets and Liabilities of the Government of Canada, as at
Mar. 31, 1959-61—concluded**

Item	1959	1960	1961
	\$	\$	\$
Liabilities			
Current and Demand Liabilities—			
Outstanding treasury cheques.....	247,305,080	228,768,468	251,740,839
Accounts payable.....	256,401,698	245,099,099	221,396,476
Non-interest-bearing notes payable on demand.....	205,828,500	381,828,500	383,660,444
Matured debt outstanding.....	28,743,983	20,067,997	31,872,131
Interest due and outstanding.....	56,214,613	57,690,734	66,776,824
Interest accrued.....	124,892,689	137,622,473	154,015,640
Other current liabilities.....	33,173,039	27,979,624	38,098,891
Totals, Current and Demand Liabilities.....	952,559,602	1,099,056,895	1,147,561,245
Deposit and trust accounts.....	237,917,457	242,673,334	239,667,315
Annuity, Insurance and Pension Accounts—			
Government annuities.....	1,105,825,076	1,156,867,225	1,199,122,929
Canadian forces superannuation account.....	942,314,839	1,053,010,905	1,155,332,721
Public service superannuation account.....	1,136,021,863	1,229,620,322	1,468,848,108
Miscellaneous.....	117,699,254	125,877,197	132,205,687
Totals, Annuity, Insurance and Pension Accounts.....	3,301,861,032	3,565,375,649	3,955,509,445
Undisbursed Balance of Appropriations to Special Accounts—			
Colombo Plan Fund.....	59,877,928	62,965,577	67,533,227
Miscellaneous.....	23,508,705	33,654,387	36,959,474
Totals, Undisbursed Balances of Appropriations to Special Accounts.....	83,386,633	96,619,964	104,492,701
Deferred credits and suspense accounts.....	100,093,566	92,489,365	87,691,340
Unmatured Debt—			
Bonds—			
Payable in Canada.....	13,777,302,050	13,563,340,350	14,002,750,850
Payable in London.....	51,811,453	51,811,453	31,989,064
Payable in New York.....	150,000,000	150,000,000	98,175,000
Treasury Bills and Notes—			
Payable in Canada.....	1,595,000,000	2,125,000,000	1,935,000,000
Totals, Unmatured Debt.....	15,574,113,503	15,890,151,803	16,067,914,914
Totals, Liabilities.....	20,249,931,793	20,986,367,010	21,602,836,960

Guaranteed Debt.—In addition to the direct debt already dealt with, the Government of Canada has assumed certain contingent liabilities. The major categories of this indirect or contingent debt are the guarantee of insured loans under the National Housing Act, the guaranteed bonds and debentures of the Canadian National Railways and the guarantee of deposits maintained by the chartered banks in the Bank of Canada. The remainder consists chiefly of guarantees of loans made by chartered banks to the Canadian Wheat Board and to farmers and veterans for certain authorized purposes and guarantees under the Export Credits Insurance Act.

12.—Guaranteed Debt of the Government of Canada, as at Mar. 31, 1961

Source: Public Accounts

Item	Amount of Guarantee Authorized	Amount Outstanding in the Hands of the Public as at Mar. 31, 1961 ¹
	\$	\$
Railway Securities Guaranteed as to Principal and Interest—		
Canadian Northern Alberta Ry. Co. 3½ per cent deb. stock due 1960, £647,260/5/6.....	35,770,000	2,069,805
Grand Trunk Pacific Ry. Co. 3 per cent bonds due 1962, £14,000,000/0/0.....	68,040,000	26,465,130
Canadian Northern Alberta Ry. Co. 3½ per cent deb. stock due 1962, £733,561/12/10.....	3,570,000	—
Grand Trunk Pacific Ry. Co. 4 per cent bonds due 1962, £3,280,000/0/0.....	15,940,800	7,999,074
Canadian National Ry. Co. 2½ per cent bonds due 1963.....	250,000,000	250,000,000
Canadian National Ry. Co. 5½ per cent bonds due 1964.....	200,000,000	199,000,000
Canadian National Ry. Co. 3 per cent bonds due 1966.....	35,000,000	35,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1967.....	50,000,000	50,000,000
Canadian National Ry. Co. 4½ per cent bonds due 1967.....	75,000,000	72,750,000
Canadian National Ry. Co. 5 per cent bonds due 1968.....	60,000,000	56,400,000
Canadian National Ry. Co. 2½ per cent bonds due 1969.....	70,000,000	70,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1971.....	40,000,000	40,000,000
Canadian National Ry. Co. 3½ per cent bonds due 1974.....	200,000,000	200,000,000
Canadian National Ry. Co. 2½ per cent bonds due 1975.....	6,000,000	6,000,000
Canadian National Ry. Co. 5 per cent bonds due 1977.....	90,000,000	85,950,000
Canadian National Ry. Co. 4 per cent bonds due 1981.....	300,000,000	300,000,000
Canadian National Ry. Co. 5½ per cent bonds due 1985.....	100,000,000	99,500,000
Canadian National Ry. Co. 5 per cent bonds due 1987.....	175,000,000	171,500,000
	1,774,320,800	1,672,634,009
Railway Securities Guaranteed as to Interest Only—		
Grand Trunk Ry. Acquisition Guarantees—		
Grand Trunk 5 per cent perp. deb. stock £4,270,375/0/0.....	20,782,492	51,190
Grand Trunk 4 per cent perp. deb. stock £24,624,455/0/0.....	119,839,014	5,054
	140,621,506	56,244
Other Guarantees—		
Deposits maintained by chartered banks in Bank of Canada.....	Unstated	656,295,222
Loans made by approved lending institutions under National Housing Acts prior to 1954 Act.....	Unstated	Indeterminate
Loans made by lenders under Part IV of the National Housing Act, 1954, for home extensions and improvements.....	10,000,000	7,526,556 ²
Insured loans made by approved lenders under the National Housing Act, 1954.....	4,000,000,000	3,017,404,029 ²
Guarantees to owners of return from moderate-rental housing projects.....	Unstated	Indeterminate
Guarantees under Export Credits Insurance Act, Part I.....	200,000,000	109,934,384
Loans made by chartered banks under the Farm Improvement Loans Act.....	66,448,290	46,799,034
Loans made by chartered banks under the Veterans Business and Professional Loans Act.....	Indeterminate	180,672
Loans made by chartered banks under the Prairie Grain Producers' Interim Financing Act, 1956.....	Indeterminate	32,789
Loans made by chartered banks under the Fisheries Improvement Loans Act.....	Indeterminate	132,622
Loans made by chartered banks under the Small Business Loans Act.....	30,000,000	187,635
Loans made by chartered banks to the Canadian Wheat Board.....	100,000,000	125,557,686
Loans made by chartered banks under the Prairie Grain Advance Payments Act.....	Unstated	35,836,260
Loans made by chartered banks under the Prairie Grain Provisional Payments Act.....	Unstated	31,200
Loans made by chartered banks under the Prairie Grain Loan Act.....	Indeterminate	3,127

¹ These contingent liabilities are expressed in Canadian dollars; where applicable, stocks and bonds payable solely in sterling or United States dollars are converted on the basis of £1=\$2.80 and \$1 U.S.=£1 Canadian, respectively. In addition the government has an indeterminate contingent liability in respect of rental guarantee contracts which in 1960 amounted to approximately \$15,500,000. Against this amount was a reserve of \$3,389,644.

² As at Dec. 31, 1960.

³ As reported (in accordance with Sect. 45, National Housing Loan Regulations) by approved lenders for their respective fiscal years ended between Oct. 31 and Dec. 31, 1960.

A brief commentary dealing with the national debt of the Government of Canada from 1914 appears at p. 1091 of the 1954 Year Book. The following table summarizes the debt position during the period 1952-61 as to interest and amount outstanding. Details of

unmatured debt and treasury bills outstanding and information on new security issues of the Federal Government may be found in the *Public Accounts*. They are summarized by standard classification in DBS publication *Financial Statistics of the Government of Canada* (Catalogue No. 68-211).

13.—Summary of the Public Debt and Interest Payments Thereon, Years Ended Mar. 31, 1952-61

NOTE.—Statistics for 1867-1913 are given in the 1942 Year Book, p. 775; for 1914-35 in the 1947 edition, p. 972; for 1936-48 in the 1951 edition, p. 1009; and for 1949-51 in the 1959 edition, p. 1063.

Year	Gross Debt	Net Active Assets	Net Debt	Net Debt per Capita ¹	Increase or Decrease of Net Debt during Year	Interest Paid on Debt	Interest Paid per Capita ²
	\$	\$	\$	\$	\$	\$	\$
1952.....	17,257,668,676	6,072,387,129	11,185,281,547	773.59	-248,033,402	432,423,082 ³	30.87
1953.....	17,918,490,812	6,756,756,543	11,161,734,269	751.88	-23,547,277	451,339,521	31.21
1954.....	17,923,189,502	6,807,252,438	11,115,937,064	727.15	-45,797,205	476,061,625	32.07
1955.....	17,951,491,464	6,688,411,310	11,263,080,154	717.49	147,143,090	477,914,894	31.26
1956.....	19,124,232,779	7,843,863,815	11,280,368,964	701.47	17,288,810	492,624,067	31.38
1957.....	18,335,797,515	7,328,146,357	11,007,651,158	662.71 ⁺	-272,717,806	520,189,398	32.35
1958.....	18,418,541,848	7,372,267,958	11,046,273,890	646.74 ⁺	38,622,732	539,207,260	32.46 ⁺
1959.....	20,246,773,669	8,568,383,809	11,678,389,860	667.98 ⁺	632,115,970	606,615,887	35.52 ⁺
1960.....	20,986,367,010	8,897,173,007	12,089,194,003	676.51 ⁺	410,804,143	735,630,175	42.08 ⁺
1961.....	21,602,836,960	9,165,721,865	12,437,115,095	681.92	347,921,092	756,664,228	42.34

¹ Based on the official estimates of population for June 1 of the year indicated. estimates of population for June 1 of the year immediately preceding the one indicated. adjustment required to place interest on public debt on accrued basis.

² Based on the official
³ Excludes \$87,510,068

Subsection 3.—Revenue from Taxation

The incidence of Federal Government taxation is dealt with in Section 2. This Subsection includes statistical data on revenue received from individual income tax, corporation tax, estate tax, excise duties and excise taxes; customs receipts constitute a single item in the *Public Accounts* and are not included here.

Individual and Corporation Income Tax

Statistics of income tax collections are gathered at the time the payments are made and are therefore up to date. Over 85 p.c. of individual taxpayers are wage or salary earners who have almost the whole of their tax liability deducted at the source by their employers. All other taxpayers are required to pay most of their estimated tax during the taxation year. Thus, the greater part of the tax is collected during the same year in which the related income is earned and only a limited residue remains to be collected when the returns are filed. The collections for a given fiscal year include tax deductions and instalments for twelve months, embracing portions of two taxation years, and a mixture of year-end payments for the first of these years and for the preceding year; they cannot therefore be closely related to the statistics for a given taxation year. As little information about a taxpayer is received when the payment is made and, as a single cheque from one employer may frequently cover the tax payments of hundreds of employees, the payments cannot be statistically related to taxpayers by occupation or income. Descriptive classifications of taxpayers are available only from tax returns but collection statistics, if interpreted with the current tax structure and the above factors in mind, indicate the trend of income in advance of the final compilation of statistics.

The statistics given in Table 14 pertain to tax collections by the Taxation Division of the Department of National Revenue. The collections are for fiscal years ended Mar. 31.

14.—Taxes Collected by the Taxation Division of the Department of National Revenue, Years Ended Mar. 31, 1953-62

NOTE.—Figures for 1917-34 are given in the 1947 Year Book, pp. 999-1000; for 1935-48 in the 1951 Year Book, p. 994; and for 1949-52 in the 1959 edition, p. 1066.

Year Ended Mar. 31—	Income Tax ¹			Estate Tax	Total Collections
	Individual ²	Corporation	Total		
	\$	\$	\$	\$	\$
1953.....	1,278,949,939	1,276,940,150	2,555,890,089	38,070,529	2,593,960,618
1954.....	1,332,116,907	1,246,786,598	2,578,903,505	39,137,594	2,618,041,099
1955.....	1,345,547,443	1,066,585,823	2,412,197,266	44,768,029	2,456,965,295
1956.....	1,354,275,414	1,081,055,818	2,435,331,232	66,607,026	2,501,938,258
1957.....	1,601,897,580	1,335,636,914	2,937,534,494	79,709,197	3,017,243,691
1958.....	1,699,123,470	1,295,470,725	2,994,594,195	71,607,758	3,066,201,953
1959.....	1,561,062,606	1,075,878,164	2,636,940,770	72,535,140	2,709,475,910
1960.....	1,825,547,063	1,234,215,702	3,059,762,765	88,430,705	3,148,193,470
1961.....	2,028,733,394	1,380,128,380	3,408,861,774	84,879,372	3,493,741,146
1962.....	2,200,573,190	1,303,502,634	3,504,075,824	84,579,382	3,588,655,206

¹ Includes old age security tax.

² Includes "non-resident" taxes.

Individual Income Tax Statistics.—Individual income tax statistics are presented in Tables 15 to 17 on a calendar-year basis and are compiled from a sample of all returns received. Taxpayers and amounts of income and tax are shown for selected cities and by occupation and income classes.

15.—Number of Taxpayers and Amounts of Income and Tax, by Selected Cities, 1959 and 1960

City and Province	1959			1960		
	Taxpayers	Total Income Assessed	Tax Payable ¹	Taxpayers	Total Income Assessed	Tax Payable ¹
	No.	\$'000	\$'000	No.	\$'000	\$'000
Brantford, Ont.....	19,917	81,048	7,772	18,242	75,334	7,486
Calgary, Alta.....	82,236	372,078	39,477	83,907	382,394	42,578
Edmonton, Alta.....	95,499	403,280	40,365	97,257	408,702	41,268
Fort William and Port Arthur, Ont..	31,193	126,557	11,300	32,204	137,363	13,173
Halifax, N.S.....	43,898	171,832	15,128	47,024	189,927	17,776
Hamilton, Ont.....	110,029	484,667	48,735	111,526	502,526	52,201
Hull, Que.....	13,758	50,827	3,424	11,558	44,263	3,375
Kitchener and Waterloo, Ont.....	33,470	134,792	12,865	35,672	150,156	15,437
London, Ont.....	53,874	218,865	21,586	57,477	239,526	24,207
Montreal, Que.....	565,235	2,413,625	209,209	575,459	2,546,690	240,824
New Westminster, B.C.....	20,738	85,763	7,819	18,478	82,055	7,926
Niagara Falls, Ont.....	14,526	60,390	5,342	15,957	68,811	6,266
Oshawa, Ont.....	22,092	96,096	10,272	22,028	101,332	10,823
Ottawa, Ont.....	99,877	433,928	43,813	106,113	479,203	52,275
Quebec, Que.....	59,084	238,027	18,042	65,017	267,248	21,763
Regina, Sask.....	38,023	156,126	15,137	39,043	162,756	16,195
St. Catharines, Ont.....	23,591	102,640	9,943	25,232	113,650	11,238
St. John's, Nfld.....	17,766	72,813	6,852	18,261	75,368	7,697
Saint John, N.B.....	21,422	79,335	6,125	22,594	85,054	7,055
Saskatoon, Sask.....	28,926	117,543	10,682	31,480	127,929	12,147
Sherbrooke, Que.....	13,369	48,718	3,190	15,113	57,292	4,288
Sudbury and Copper Cliff, Ont.....	33,716	152,295	14,148	34,016	159,494	15,453
Sydney and Glace Bay, N.S.....	13,358	53,293	3,799	14,019	59,262	4,790
Toronto, Ont.....	603,529	2,606,281	289,128	629,736	2,818,961	331,609
Vancouver (incl. West Van.), B.C....	218,917	972,659	102,510	219,225	993,048	108,908
Victoria, B.C.....	41,714	178,759	16,108	42,758	185,370	18,153
Windsor, Ont.....	48,046	206,888	18,935	49,345	218,855	20,893
Winnipeg, Man.....	151,974	616,713	59,516	154,252	637,724	64,413
Other localities.....	1,722,713	6,717,451	528,819	1,796,423	7,207,590	603,431
Totals.....	4,242,490	17,448,289	1,580,041	4,389,766	18,578,218	1,783,598

¹ Includes old age security tax.

**16.—Number of Taxpayers and Amounts of Income and Tax, by Occupational Class,
1959 and 1960**

Occupational Class	1959			1960		
	Taxpayers	Total Income Assessed	Tax Payable ¹	Taxpayers	Total Income Assessed	Tax Payable ¹
	No.	\$'000	\$'000	No.	\$'000	\$'000
Farmers.....	66,011	273,615	20,885	66,916	275,955	21,814
Fishermen.....	3,895	17,113	1,468	3,200	12,081	948
Professionals—						
Accountants.....	3,620	39,939	7,534	4,119	47,147	9,399
Medical doctors.....	12,878	202,663	44,035	14,013	228,740	52,027
Dentists.....	4,220	48,973	8,758	4,381	53,615	10,429
Lawyers and notaries.....	6,934	97,930	22,435	7,195	105,023	25,185
Engineers and architects.....	2,183	32,705	7,537	2,019	31,639	7,764
Nurses.....	3,122	7,391	448	2	2	2
Other professionals.....	9,307	59,793	7,883	12,701	72,982	9,785
Employees.....	3,743,111	14,551,294	1,201,606	3,868,185	15,555,079	1,373,103
Salesmen.....	52,029	289,806	30,847	50,635	281,605	30,390
Business proprietors.....	192,724	1,042,157	119,867	199,014	1,052,062	119,951
Investors.....	107,089	657,459	97,101	112,334	702,655	110,344
Pensioners.....	24,326	75,827	4,297	31,497	98,093	5,548
All others.....	11,041	51,625	5,340	13,557	61,542	6,911
Totals.....	4,242,490	17,448,289	1,580,041	4,389,766	18,578,218	1,783,598

¹ Includes old age security tax.² Included with "Other professionals".

17.—Individual Income Tax Statistics, by Income Class, 1959 and 1960

Income	Taxpayers		Total Income Assessed		Tax Payable ¹		Average Tax ¹	
	1959	1960	1959	1960	1959	1960	1959	1960
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$	\$
Under \$1,000.....	22,515	24,173	11,671	12,471	1,091	1,283	48	53
\$1,000 under \$1,100..	2,755	2,761	2,882	2,885	154	176	56	64
\$1,100 " \$1,200..	63,265	61,078	72,689	70,176	547	535	9	9
\$1,200 " \$1,300..	68,666	68,704	85,382	85,480	1,360	1,494	20	22
\$1,300 " \$1,400..	69,416	69,232	93,326	93,212	2,219	2,380	32	34
\$1,400 " \$1,500..	68,873	67,717	99,485	97,846	2,969	3,116	43	46
\$1,500 " \$1,600..	69,918	66,514	108,026	102,738	3,872	3,907	55	59
\$1,600 " \$1,700..	73,298	73,104	120,603	120,277	4,714	4,863	64	67
\$1,700 " \$1,800..	72,849	71,456	127,120	124,675	5,357	5,489	73	77
\$1,800 " \$1,900..	76,416	76,097	140,915	140,271	6,530	6,791	85	89
\$1,900 " \$2,000..	74,269	73,084	144,418	142,119	7,226	7,189	93	98
Totals, \$1,000 and under \$2,000.....	639,725	629,747	994,846	979,679	34,948	35,940	54	57
\$2,000 under \$2,100..	73,327	73,543	149,992	150,319	7,889	8,354	107	114
\$2,100 " \$2,200..	83,765	82,254	179,669	176,384	9,249	9,240	110	112
\$2,200 " \$2,300..	85,396	84,277	191,741	189,217	10,304	10,371	120	123
\$2,300 " \$2,400..	85,736	86,395	201,095	202,676	11,053	11,690	129	135
\$2,400 " \$2,500..	90,204	89,059	220,425	217,673	12,463	12,739	138	143
\$2,500 " \$2,600..	87,332	85,031	222,246	216,369	12,888	13,071	148	154
\$2,600 " \$2,700..	93,820	95,290	248,087	251,927	13,835	14,677	147	154
\$2,700 " \$2,800..	93,268	91,895	256,012	252,255	14,474	14,966	173	163
\$2,800 " \$2,900..	96,164	93,508	273,642	266,090	15,454	15,787	161	169
\$2,900 " \$3,000..	97,573	94,983	287,280	279,681	16,070	17,061	165	180
Totals, \$2,000 and under \$3,000.....	886,585	876,235	2,230,189	2,202,591	123,679	127,956	139	146

¹ Includes old age security tax.

17.—Individual Income Tax Statistics, by Income Class, 1959 and 1960—concluded

Income	Taxpayers		Total Income Assessed		Tax Payable ¹		Average Tax ¹	
	1959	1960	1959	1960	1959	1960	1959	1960
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$	\$
\$3,000 under \$3,100..	100,555	96,407	306,004	293,413	17,637	17,653	176	183
\$3,100 " \$3,200..	107,963	103,766	339,548	326,364	19,435	19,659	180	189
\$3,200 " \$3,300..	101,990	102,046	330,933	331,068	19,182	20,386	188	200
\$3,300 " \$3,400..	104,776	103,196	350,445	345,195	20,621	21,695	196	210
\$3,400 " \$3,500..	100,913	103,220	347,612	355,611	20,858	22,781	206	221
\$3,500 " \$4,000..	496,521	490,106	1,857,198	1,834,685	115,231	121,422	232	248
\$4,000 " \$4,500..	427,938	445,494	1,812,331	1,888,522	121,821	133,154	284	299
\$4,500 " \$5,000..	328,281	359,770	1,553,214	1,703,052	114,341	131,316	348	365
Totals, \$3,000 and under \$5,000....	1,768,937	1,804,005	6,897,285	7,077,910	449,126	488,066	253	271
\$5,000 under \$6,000..	397,403	451,522	2,159,147	2,455,870	180,192	214,296	453	475
\$6,000 " \$7,000..	195,740	225,279	1,260,465	1,450,702	120,528	144,105	616	640
\$7,000 " \$8,000..	106,225	122,162	791,360	909,101	83,146	99,742	783	816
\$8,000 " \$9,000..	59,791	69,454	505,245	587,099	58,457	69,882	974	1,006
\$9,000 " \$10,000..	38,112	45,468	360,122	429,104	44,737	55,100	1,174	1,212
Totals, \$5,000 and under \$10,000....	797,271	913,885	5,076,339	5,831,876	437,060	583,125	611	638
\$10,000 under \$15,000	76,753	85,765	913,982	1,022,101	133,913	155,136	1,745	1,809
\$15,000 " \$20,000	24,389	26,879	416,981	459,738	80,432	90,988	3,708	3,385
\$20,000 " \$25,000	10,027	11,383	222,448	252,644	51,389	59,938	5,124	5,263
Totals, \$10,000 and under \$25,000....	111,169	124,032	1,553,411	1,734,483	265,734	306,062	2,393	2,468
\$25,000 under \$50,000	13,231	14,395	437,095	475,039	124,462	138,387	9,407	9,614
\$50,000 and over....	3,057	3,294	247,456	264,169	93,942	102,778	30,730	31,202
Totals, \$25,000 and over.....	16,288	17,689	684,551	739,208	218,404	241,165	13,409	13,634
Grand Totals....	4,242,490	4,389,766	17,448,289	18,578,218	1,580,041	1,783,598	372	406

¹ Includes old age security tax.

Corporation Income Tax Statistics.—Corporation statistics presented in Tables 18 and 19 are on a taxation-year basis prior to assessment. The data were extracted and compiled from the returns shortly after they were filed and are as declared by the taxpayer without the scrutiny or revision of the Department of National Revenue. Provincial figures contain an unavoidable bias in favour of Ontario and Quebec because many large corporations operating across Canada file their returns in one or other of these provinces.

18.—Summary Statistics for Corporations Reporting a Profit, Taxation Years 1959 and 1960

Item	1959			1960		
	Corporations Reporting	Current Year Profit	Total Tax Declared ¹	Corporations Reporting	Current Year Profit	Total Tax Declared ¹
	No.	\$'000,000	\$'000,000	No.	\$'000,000	\$'000,000
Active taxable corporations—excluding co-operatives and Crown corporations.....	62,742	3,529.4	1,300.1	64,100	3,444.4	1,269.7
Inactive corporations.....	2,667	1.4	0.2	2,594	1.6	0.1
Co-operatives.....	1,996	9.3	2.2	1,878	9.1	2.1
Crown corporations.....	8	25.4	11.7	7	37.6	18.3
Totals, Taxable Corporations...	67,413	3,565.5	1,314.2	68,579	3,492.7	1,290.2
Personal corporations.....	2,308	31.7	—	2,380	34.2	—
Other exempt corporations.....	3,447	34.6	—	3,296	31.4	—
Totals, Taxable and Exempt...	73,168	3,631.8	1,314.2	74,255	3,558.3	1,290.2

¹ Includes old age security tax.

19.—Distribution of Active Taxable Corporations Reporting a Profit, by Industry and Province, Taxation Years 1959 and 1960

Industrial Group and Province	1959			1960		
	Corporations Reporting	Current Year Profit	Total Tax Declared ¹	Corporations Reporting	Current Year Profit	Total Tax Declared ¹
	No.	\$'000,000	\$'000,000	No.	\$'000,000	\$'000,000
Industrial Group						
Agriculture, fishing and forestry.....	1,065	12.9	3.0	1,106	14.4	3.9
Mining.....	652	151.2	62.4	658	165.3	68.6
Manufacturing.....	12,229	1,695.6	667.4	11,772	1,593.4	622.4
Construction.....	7,495	181.4	53.9	7,316	139.9	38.7
Transportation, storage and communications.....	2,693	234.5	116.7	2,717	383.6	155.9
Public utilities.....	272	77.2	31.6			
Wholesale trade.....	9,480	295.8	95.9			
Retail trade.....	11,253	282.7	93.6			
Finance.....	11,625	443.2	147.1	12,549	506.1	173.0
Service.....	5,978	99.9	28.5	6,944	104.4	27.9
Totals.....	62,742	3,529.4	1,300.1	64,100	3,444.4	1,269.7
Province						
Newfoundland.....	640	26.0	10.7	610	28.4	11.8
Prince Edward Island.....	173	3.9	1.3	316	6.0	1.8
Nova Scotia.....	1,402	32.3	12.6	1,519	43.8	16.8
New Brunswick.....	1,217	36.3	14.1	1,242	36.8	14.5
Quebec.....	15,616	1,078.6	390.8	16,107	1,104.1	394.6
Ontario.....	23,153	1,725.3	628.1	23,648	1,629.9	598.6
Manitoba.....	2,997	124.8	49.7	3,180	117.5	46.4
Saskatchewan.....	1,994	35.6	11.7	1,875	35.4	12.1
Alberta.....	5,672	172.0	64.9	6,039	168.6	62.5
British Columbia.....	9,878	294.5	116.1	9,564	273.9	110.5

¹ Includes old age security tax.

20.—Corporations Reporting a Profit, by Income Class and Size of Total Assets, Taxation Years 1959 and 1960

NOTE.—Figures are for corporations described as "fully tabulated", which means corporations for which sufficient information has been received for complete analyses.

Income Class and Size of Assets	1959		1960	
	Corporations Reporting	Current Year Profit	Corporations Reporting	Current Year Profit
	No.	\$'000,000	No.	\$'000,000
Income Class				
Under \$5,000.....	23,761	40.1	26,012	44.2
\$5,000 under \$10,000.....	10,899	74.2	10,716	71.7
\$10,000 under \$25,000.....	16,013	263.6	15,918	257.7
\$25,000 under \$50,000.....	5,847	186.5	5,764	180.5
\$50,000 under \$100,000.....	2,120	147.3	1,960	136.1
\$100,000 under \$250,000.....	1,077	200.8	1,517	236.1
\$250,000 under \$500,000.....	707	244.7	620	218.7
\$500,000 under \$1,000,000.....	396	277.3	400	278.3
\$1,000,000 under \$5,000,000.....	343	680.0	328	678.9
\$5,000,000 or over.....	89	1,172.5	77	1,101.0
Totals.....	61,852	3,347.0	63,312	3,203.1
Total Assets				
Under \$50,000.....	27,324	156.8	28,822	151.0
\$50,000 under \$100,000.....				
\$100,000 under \$250,000.....	16,840	204.7	16,818	193.7
\$250,000 under \$500,000.....	8,349	181.9	8,150	168.2
\$500,000 under \$1,000,000.....	4,479	195.6	4,621	176.2
\$1,000,000 under \$5,000,000.....	3,654	533.2	3,673	483.2
\$5,000,000 under \$10,000,000.....	555	250.3	544	221.7
\$10,000,000 under \$25,000,000.....	340	321.0	358	313.4
\$25,000,000 under \$100,000,000.....	238	611.6	239	587.6
\$100,000,000 or over.....	73	892.0	87	908.0

Succession Duties and Estate Taxes

A history of succession duties in Canada, together with examples of the occurrences of federal duty on typical estates and of combined federal and provincial duties on typical estates, is given in the 1956 Year Book, pp. 1064-1068.

Since 1947, only Ontario and Quebec among the provinces have been levying succession duties, the other provinces having leased this field to the Federal Government under terms of the 1947, 1952 and 1957 tax rental agreements (p. 1015). Effective Apr. 1, 1962, in accordance with the Federal-Provincial Fiscal Arrangements Act, the Federal Government may, in the case of any province choosing not to levy a succession duty, pay to such province half of the yield from the federal estate tax in that province calculated in the same way as under the previous tax rental agreements. A tax abatement of 50 p.c. of the federal estate tax otherwise payable is granted in respect of property situated in a province which levies succession duties.

An outline of the Estate Tax Act passed by Parliament in 1958 is given in the 1959 Year Book, pp. 1070-1071. The Act was amended in 1960 with respect to charitable donations, life insurance and annuities.

Table 21 shows the receipts of the various governments from succession duties and estate taxes for the years ended Mar. 31, 1958-61.

21.—Federal and Provincial Revenue from Succession Duties and Estate Taxes, Years Ended Mar. 31, 1958-61

NOTE.—Statistics for 1948-52 are given in the 1954 Year Book, p. 1080; for 1953-54 in the 1956 edition, p. 1064; and for 1955-57 in the 1959 edition, p. 1071.

Province	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000
Federal.....	71,608	72,535	88,431 ¹	84,879 ¹
Provincial— ²				
Newfoundland.....	—	—	—	—
Prince Edward Island.....	—	—	—	—
Nova Scotia.....	12	1	—	—
New Brunswick.....	—	1	—	—
Quebec.....	20,637	22,270	22,496	22,846
Ontario.....	31,980	33,518	33,736	37,603
Manitoba.....	2	1	2	—
Saskatchewan.....	9	4	5	5
Alberta.....	5	2	7	2
British Columbia.....	—	—	—	—

¹ Estate tax, including succession duties.

² Under terms of the 1947, 1952, 1957 and 1961 Dominion-Provincial Taxation Agreements all provinces except Ontario and Quebec refrain from levying succession duties; amounts shown for other provinces are collection of arrears.

Excise Taxes

Excise taxes collected by the Excise Division of the Department of National Revenue are given for the years ended Mar. 31, 1957-61 in Table 22.

22.—Excise Taxes Collected, by Commodity, Years Ended Mar. 31, 1957-61

(Accrued Revenue)

Commodity	1957	1958	1959	1960	1961
	\$	\$	\$	\$	\$
Domestic—					
Automobiles, tires and tubes.....	69,314,263	62,108,080	47,303,897	47,266,990	44,854,366
Beverages.....	8,848,161	608,851	...	...	...
Candy and chewing gum.....	9,021,685	712,700	...	...	...
Carbonic acid gas.....	139,378	6,463	...	...	...
Cigars, cigarettes and tobacco.....	130,581,694	140,682,617	146,509,545	183,868,989	191,918,772
Licences.....	84,520	81,984	19,324	518	—
Lighters.....	69,640	60,329	62,833	64,393	83,290
Matches.....	604,431	632,146	628,914	610,733	509,603
Other taxes on manufactures.....	5,387,461	4,668,672	4,526,775	4,869,629	5,956,062
Phonographs, radios and tubes.....	5,320,010	5,581,524	5,495,501	5,556,782	4,656,242
Playing cards.....	635,202	701,555	783,670	786,055	704,800
Sales, domestic.....	764,048,020	764,789,901	753,175,577	863,255,893	856,258,282
Television sets and tubes.....	12,443,101	9,927,745	10,033,057	9,139,633	8,140,295
Toilet preparations.....	5,828,044	6,032,146	6,576,040	7,408,815	8,145,786
Wines.....	2,618,324	2,744,237	3,140,180	3,026,623	3,223,761
Penalties and interest.....	399,648	476,786	427,332	571,638	730,477
Totals, Domestic.....	1,015,343,582	999,815,736	978,682,645	1,126,426,690	1,125,181,736
Imported.....	176,714,583	159,173,870	162,110,151	198,111,452	190,271,710
Grand Totals.....	1,192,058,165	1,158,989,606	1,140,792,796	1,324,538,142	1,315,453,446

Excise Duties

Gross excise duties collected during the years ended Mar. 31, 1957-61 are given in Table 23 and other data of interest arising as a by-product of administration, such as the quantities of grain and other products used in distillation and the quantities of goods taken out of bond and subject to excise duty, are given in Table 24. The totals given in Table 23 do not agree with net excise duties as shown in Table 9 because refunds and drawbacks are included. A drawback of 99 p.c. of the duty may be granted when domestic spirits, testing not less than 50 p.c. over proof, are delivered in limited quantities for medicinal or research purposes to universities, scientific or research laboratories, public hospitals, or health institutions in receipt of federal and provincial government aid.

23.—Gross Excise Duties Collected, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
	\$	\$	\$	\$	\$
Spirits.....	86,180,032	89,928,576	96,550,734	102,353,962	108,502,109
Beer or malt liquor.....	83,077,741	88,225,546	83,058,147	90,704,392	90,970,563
Tobacco and cigarettes.....	120,818,541	131,378,168	140,881,924	145,503,942	148,964,858
Cigars.....	267,235	305,894	319,369	672,030	693,646
Licences.....	35,556	34,069	34,471	34,547	34,226
Totals.....	290,379,105	309,872,253	320,844,645	339,268,873	349,165,402

24.—Statistics of Licences and Distillation, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
Licences issued.....No.	28	28	27	28	29
Licence fees.....\$	7,750	7,250	7,000	7,250	7,500
Grain, etc., Used for Distillation—					
Malt.....lb.	41,788,225	39,098,917	38,307,971	44,931,157	44,735,863
Indian corn.....	281,299,649	247,011,281	240,221,429	280,449,929	294,767,657
Rye....."	55,480,416	61,228,045	61,923,728	75,823,828	67,931,857
Wheat and other grain....."	803,490	770,540	4,105,310	1,619,782	362,468
Totals, Grain Used.....lb.	379,371,780	348,106,783	344,558,438	402,824,696	407,797,845
Molasses used.....lb.	35,471,876	33,352,564	69,272,572	47,990,689	67,372,931
Wine and other materials....."	4,114,008	4,875,894	8,485,870	7,949,327	12,311,263
Sulphide liquor.....gal.	368,070,334	374,711,047	339,002,204	341,939,637	347,022,242
Proof spirits manufactured....proof gal.	30,028,834	28,135,387	29,763,383	32,188,806	33,650,346

The quantity of spirits manufactured has fluctuated greatly since 1920, varying from a low of 2,356,329 proof gal. in that year to a high of 35,555,059 proof gal. recorded in 1945. The total for 1961 was 33,650,346 proof gal.

The amounts of beverage spirits, malt beer, malt, cigars, cigarettes and other tobacco taken out of bond for consumption are given in the Domestic Trade Chapter, Table 38, p. 896.

Section 4.—Provincial Public Finance

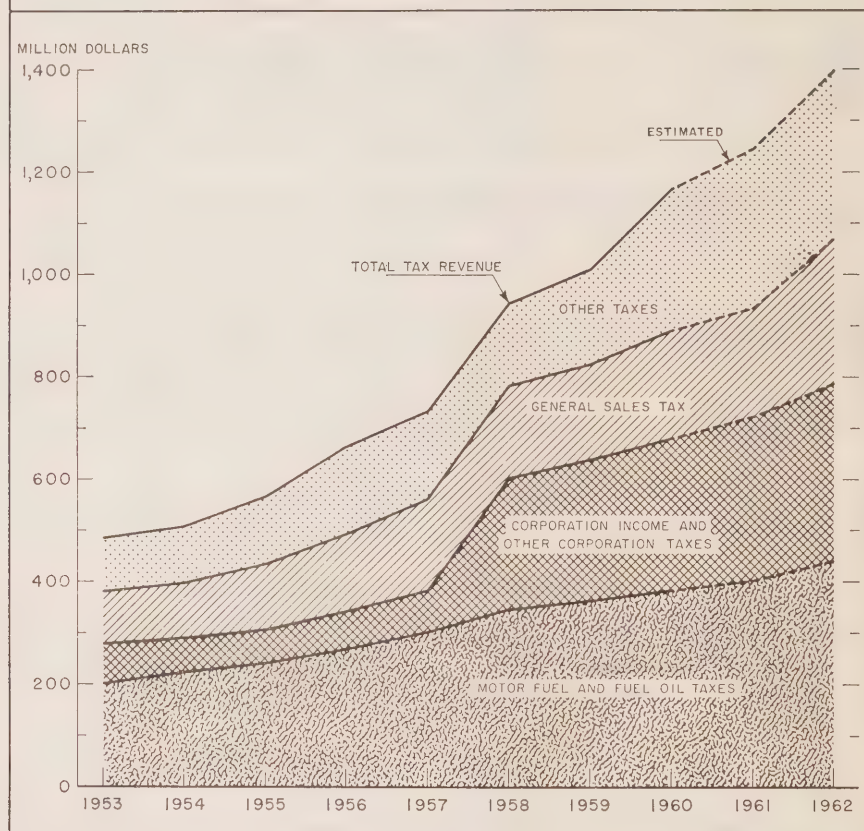
Provincial government accounting and reporting practices vary considerably so that certain adjustments to the *Public Accounts* figures are required in order to produce comparable statistics. For example, transactions relating to a specific function are sometimes excluded from ordinary account; therefore special or administrative funds of this nature have been added to provincial ordinary account in the tables of this Section.

As of 1952, the fiscal years of all provinces end on Mar. 31. Figures for the Northwest Territories are included from 1955.

Subsection 1.—Revenue and Expenditure of Provincial Governments

Table 25 shows net revenue and expenditure of provincial governments for the years ended Mar. 31, 1956-60, and Tables 26 and 27 give details of such revenue and expenditure for the fiscal years ended in 1959 and 1960. "Net general revenue" and "net general expenditure" are arrived at by first analysing the combined revenues and expenditures of capital account, current or ordinary account and those working capital funds and special funds for which separate accounts are kept. Then the following types of revenue are deducted from revenue and offset against related expenditure: interest, premium, discount and exchange; institutional revenue; grants-in-aid and shared-cost contributions from other governments; and capital revenue. Table 28 gives details of the amounts paid to other governments by provincial governments, according to nature of payment.

SOURCES OF PROVINCIAL TAX REVENUE, YEARS ENDED MAR. 31, 1953-62



25.—Net Revenue and Expenditure of Provincial Governments, Years Ended Mar. 31, 1956-60

Province or Territory	1956	1957	1958	1959	1960
NET GENERAL REVENUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	33,534	36,870	39,479	62,381	60,266
Prince Edward Island.....	8,044	7,570	9,441	12,568	13,819
Nova Scotia.....	54,329	57,881	64,480	75,752	90,532
New Brunswick.....	52,783	57,335	61,616	71,007	77,343
Quebec.....	412,745	445,930	515,384	556,723	605,035
Ontario.....	431,802	481,775	594,480	647,067	778,450
Manitoba.....	59,349	66,120	73,594	76,573	99,814
Saskatchewan.....	102,702	121,872	135,965	141,409	145,658
Alberta.....	225,326	241,317	246,013	236,370	278,882
British Columbia.....	230,773	273,059	281,796	295,722	313,758
Yukon Territory.....	1,785	1,703	2,056	1,885	2,082
Northwest Territories.....	916	1,125	1,269	1,412	1,597
Totals.....	1,614,088	1,792,557	2,025,573	2,178,869	2,467,236

25.—Net Revenue and Expenditure of Provincial Governments, Years Ended
 Mar. 31, 1956-60—concluded

Province or Territory	1956	1957	1958	1959	1960
	NET GENERAL EXPENDITURE ¹				
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	42,419	44,348	47,878	61,530	64,863
Prince Edward Island.....	10,343	10,094	10,766	14,388	20,049
Nova Scotia.....	57,688	70,756	74,474	86,336	91,804
New Brunswick.....	54,451	59,339	63,486	70,928	79,630
Quebec.....	399,713	433,459	493,374	533,026	600,942
Ontario.....	488,932	552,155	656,481	741,936	898,230
Manitoba.....	51,940	62,867	75,615	97,821	127,695
Saskatchewan.....	100,781	110,132	124,353	137,513	142,248
Alberta.....	159,375	170,000	199,420	215,030	234,657
British Columbia.....	207,490	257,641	287,465	266,584	283,163
Yukon Territory.....	1,405	2,143	2,070	2,148	2,297
Northwest Territories.....	728	886	1,605	1,934	1,354
Totals.....	1,575,265	1,773,818	2,036,987	2,229,174	2,546,932

¹ Excludes debt retirement.

 26.—Details of Net General Revenue of Provincial Governments, Years Ended Mar. 31,
 1959 and 1960

Source	1959	1960	Source	1959	1960
	\$'000	\$'000		\$'000	\$'000
Taxes—			Fines and Penalties.....	7,395	7,538
Corporations.....	47,656	49,918	Government of Canada—		
Income—			Share of income tax on electric		
Corporations.....	226,150	248,987	power utilities.....	8,483	4,754
Individuals.....	47,773	54,454	Subsidies.....	60,197	53,772
Property.....	8,737	8,330	Totals, Government of Canada..	68,680	58,526
Sales—			Government Enterprises and		
Alcoholic beverages.....	2,368	2,424	Other Funds—		
Amusements and admissions..	22,043	22,583	Liquor profits.....	175,338	180,227
Motor fuel and fuel oil.....	364,401	382,560	Other.....	5,748	6,851
Tobacco.....	22,248	23,224	Totals, Government Enterprises		
General.....	186,733	209,211	and Other Funds.....	181,086	187,078
Other commodities and ser-			Other Revenue.....	3,573	3,702
vices.....	6,193	6,854	Totals, excluding Non-revenue		
Succession Duties.....	55,797	56,247	and Surplus Receipts	2,169,783	2,463,499
Other.....	20,060	103,681	Non-revenue and Surplus Re-		
Totals, Taxes.....	1,010,159	1,168,473	ceipts—		
Federal Tax Rental Agreements..	399,100	461,348	Refund of previous years' ex-		
Privileges, Licences and Permits—			penditure.....	5,197	2,069
Liquor control and regulations..	38,412	44,920	Repayment of advances credited		
Motor vehicle.....	146,408	164,610	to revenue.....	3,804	1,580
Natural resources.....	258,770	303,311	Other.....	85	88
Other.....	22,897	26,698	Totals, Non-revenue and Surplus		
Totals, Privileges, Licences and			Receipts.....	9,086	3,737
Permits.....	466,487	539,539	Totals, Net General Revenue..	2,178,869	2,467,236
Sales and Services.....	33,303	37,295			

**27.—Details of Net General Expenditure of Provincial Governments, Years Ended Mar. 31,
1959 and 1960**

Function	1959	1960	Function	1959	1960
	\$'000	\$'000		\$'000	\$'000
General Government—			Education—concluded		
Executive and administrative...	87,121	98,430	Universities, colleges and other schools.....	110,491	130,372
Legislative.....	7,767	11,453	Education of the handicapped....	5,654	5,126
Research, planning and statistics.	556	636	Superannuation and pensions.....	18,125	19,752
Totals, General Government....	95,444	110,519	Other.....	9,868	15,051
			Totals, Education.....	522,726	602,851
Protection of Persons and Property—			Natural Resources and Primary Industries—		
Law enforcement.....	21,722	25,645	Fish and game.....	15,191	16,760
Corrections.....	30,231	31,769	Forests.....	53,844	51,369
Police protection.....	29,373	31,152	Lands: settlement and agriculture	60,880	75,382
Other.....	35,010	37,059	Minerals and mines.....	12,464	14,292
Totals, Protection of Persons and Property.....	116,336	125,625	Water resources.....	8,706	7,855
			Other.....	7,141	8,431
Transportation and Communications—			Totals, Natural Resources and Primary Industries.....	158,226	174,089
Airways.....	41	35	Trade and Industrial Development	11,823	14,718
Highways, roads and bridges...	616,049	675,821	Local Government Planning and Development.....	5,022	5,323
Railways.....	59	—	Debt Charges excluding Debt Retirement.....	55,351	57,076
Telephone, telegraph and wireless	26	30	Contributions to Local Governments—		
Waterways.....	5,856	4,537	Shared-revenue contributions....	988	1,227
Other.....	30	28	Subsidies.....	59,338	64,060
Totals, Transportation and Communications.....	622,061	680,451	Other.....	1,144	1,272
			Totals, Contributions to Local Governments.....	61,470	66,559
Health and Social Welfare—			Contributions to Government Enterprises.....	4,527	4,717
Health—			Other Expenditure.....	25,868	18,898
General.....	6,742	7,822	Totals, excluding Non-expense and Surplus Payments.....	2,220,921	2,527,571
Public health.....	24,218	24,095	Non-expense and Surplus Payments—		
Medical, dental and allied services.....	11,801	13,517	Advances charged to revenue....	1,415	1,283
Hospital care.....	287,496	391,489	Refunds of previous years' revenue.....	5,454	12,387
Totals, Health.....	330,257	436,923	Other.....	1,384	5,691
			Totals, Non-expense and Surplus Payments.....	8,253	19,361
Social Welfare—			Totals, Net General Expenditure (excluding debt retirement).....	2,229,174	2,546,932
Aid to aged persons.....	52,414	60,134			
Aid to blind persons.....	2,152	2,242			
Aid to unemployed employables and unemployables....	39,793	41,417			
Mothers' allowances.....	38,779	39,839			
Child welfare.....	23,216	28,719			
Labour.....	6,825	7,413			
Other.....	28,365	26,171			
Totals, Social Welfare.....	191,544	205,935			
Totals, Health and Social Welfare.....	521,801	642,858			
Recreational and Cultural Services	20,266	23,887			
Education—					
Schools operated by local authorities.....	378,588	432,550			

28.—Specified Amounts Paid to Other Governments by Provincial Governments, Year Ended Mar. 31, 1960

Nature of Payment	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Paid to Local Governments—													
Shared-revenue contributions ¹	—	—	9	—	—	1,049	—	—	189	—	—	—	1,227
Subsidies.....	977	349	1,022	5,466	250	27,242	2,506	—	15,000	11,101	80	67	64,060
Grants in lieu of local taxes on provincial government property ²	—	—	—	—	—	1,035	212	8	—	—	—	—	1,266
Other.....	7	4	—	—	—	—	—	6	—	—	—	—	6
Grants-in-Aid and Shared-Cost Contributions—													
Corrections.....	—	—	—	28	—	—	—	—	—	—	—	—	28
Police protection.....	—	—	—	—	—	223	—	—	—	—	—	—	223
Fire protection.....	—	2	—	—	1,500	157	—	—	—	—	—	—	1,660
Other protection.....	—	—	—	—	63	5	—	—	—	—	—	—	68
Highways, roads and bridges.....	185	24	—	230	4,572	62,248	4,347	6,979	5,012	186	82	16	83,881
Public health.....	99	—	—	—	335	2,555	77	181	1,093	—	—	2	4,342
Medical, dental and allied services.....	—	—	—	—	—	35	139	—	—	—	—	—	174
Hospital care.....	—	—	388	—	—	206	31	11	2	326	—	—	964
Aid to aged persons (homes).....	—	—	—	—	—	6,235	—	—	—	29	—	—	6,275
Aid to unemployed employables and unemployables.....	—	18	655	312	—	14,349	1,328	3,475	1,689	10,248	—	52	32,956
Child welfare.....	—	—	—	147	—	4,096	319	—	—	—	—	—	4,562
Other health and social welfare.....	—	—	—	—	—	176	29	—	—	—	—	3	208
Parks, beaches and other recreational areas.....	—	—	—	—	—	335	—	2	5	—	—	—	342
Physical culture.....	—	—	—	—	—	499	—	1	—	—	—	—	500
Schools operated by local authorities ³	5	1,706	14,748	8,717	80,186	118,368	23,744	24,614	51,346	50,751	7	74	404,251
Lands—													
Settlement and agriculture.....	—	—	—	—	188	1,108	532	117	217	18	—	—	2,180
Other.....	—	—	—	—	60	48	80	1	51	8	—	—	248
Local government planning and development.....	20	—	—	85	—	55	—	2	—	—	—	—	162
Civil defence.....	—	—	39	46	—	507	—	—	103	328	—	—	1,021
Housing.....	—	—	—	—	400	208	—	—	—	—	—	—	608
Winter works projects.....	25	—	—	—	1,436	2,924	620	444	1,518	869	—	—	7,826
Other payments.....	—	—	—	10	109	93	47	—	10	—	—	—	274
Totals, Paid to Local Governments.....	1,314	2,163	16,861	15,071	\$9,089	273,981	31,611	35,811	76,215	73,833	162	214	619,315
Paid to Government of Canada—													
Grants-in-aid and shared-cost contributions.....	—	—	600 ⁴	—	—	—	—	—	—	—	—	—	600
Police services—RCMP.....	639	121	644	497	—	—	837	1,047	1,408	1,817	—	—	7,010
Totals, Paid to All Governments.....	1,953	2,224	18,105	15,568	\$9,089	273,981	35,448	36,898	77,623	75,670	162	214	636,925

¹ N.S.—Crown land leases; Ont.—share of liquor licences; Alta.—share of liquor licences.
² Excludes grants in lieu of taxes paid by provincial government enterprises.
³ Excludes amounts paid directly to municipal hospital boards.
⁴ Includes grants paid directly to teachers in P.E.I., N.B., and Que.
⁵ Excludes \$2,157,190 expenditures by the province to finance school-aid programs on a denominational basis; grants to denominational schools amounted to \$13,136,000.
⁶ Local schools are operated by the territorial government and by religious denominations.
⁷ Local schools are operated by the Federal Government, religious denominations and school districts; amount shown was paid to school districts.
⁸ Movement of coal \$500,000 and banking of coal \$100,000.

Subsection 2.—Debt of Provincial Governments

Table 29 shows total bonded debt, by province, as at Mar. 31, 1957-61. Table 30 shows that the majority of bond issues are payable in Canada, but that the portion payable in the United States increased only from 19 p.c. in 1957 and 1958 to about 23 p.c. in 1961. Table 31 provides details of total direct and indirect debt of provincial governments as at Mar. 31, 1961.

29.—Gross Bonded Debt (exclusive of Treasury Bills) of Provincial Governments, as at Mar. 31, 1957-61

Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue	Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue
	\$'000	p.c.	yrs.		\$'000	p.c.	yrs.
Newfoundland—				Ontario—concluded			
1957.....	43,000	4.00	18.3	1957.....	1,576,751 ¹	3.87	19.8
1958.....	54,500	4.33	18.5	1960.....	1,643,334 ¹	3.98	19.2
1959.....	56,500	4.44	18.7	1961.....	1,691,531 ¹	4.02	18.7
1960.....	60,500	4.58	18.8	Manitoba—			
1961.....	76,500	4.86	18.8	1957.....	178,776	3.71	17.9
Prince Edward Island—				1958.....	177,302	3.67	17.1
1957.....	19,600	3.55	13.6	1959.....	204,026	3.37	14.3
1958.....	21,600	3.61	14.1	1960.....	253,672	3.57	14.5
1959.....	22,096	3.56	13.5	1961.....	298,892	3.94	15.4
1960.....	27,196	4.18	15.1	Saskatchewan—			
1961.....	28,480	4.33	14.7	1957.....	231,156	3.78	18.8
Nova Scotia—				1958.....	285,315	4.01	17.9
1957.....	228,035	3.65	18.5	1959.....	339,003	4.14	19.1
1958.....	246,660	3.70	18.3	1960.....	364,081	4.28	18.7
1959.....	267,699	3.77	18.1	1961.....	449,127	4.40	18.2
1960.....	270,739	3.58	16.3	Alberta—			
1961.....	295,860	3.72	16.4	1957.....	72,634	2.85	16.4
New Brunswick—				1958.....	20,965	2.84	16.1
1957.....	237,415	3.74	17.7	1959.....	20,327	2.83	16.2
1958.....	231,221	3.78	18.0	1960.....	18,889	2.80	16.4
1959.....	230,081	3.82	17.9	1961.....	16,164	2.78	17.0
1960.....	248,451	3.93	17.9	British Columbia—			
1961.....	244,881	4.01	18.1	1957.....	181,673	3.33	22.6
Quebec—				1958.....	165,489	3.23	22.1
1957.....	481,734	3.37	17.5	1959.....	162,770	3.24	22.3
1958.....	480,734	3.37	17.5	1960.....	80,094	3.39	23.6
1959.....	469,384	3.35	17.3	1961.....	75,806	3.42	24.0
1960.....	447,153	3.48	17.6	Totals—			
1961.....	532,153	3.88	18.1	1957.....	2,869,656	3.59	19.5
Ontario—				1958.....	2,962,143	3.68	19.1
1957.....	1,195,633 ¹	3.67	21.1	1959.....	3,348,637	3.76	18.8
1958.....	1,278,357 ¹	3.75	20.4	1960.....	3,414,109	3.87	18.3
				1961.....	3,709,394	4.02	18.1

¹ Excludes bonds assumed by the province.

30.—Gross Bonded Debt¹ (exclusive of Treasury Bills) of Provincial Governments, by Place of Payment, as at Mar. 31, 1957-61

Payable in—	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Canada.....	1,952,308	2,100,360	2,315,297	2,384,101	2,711,043
Britain.....	9,587	2,312	2,312	2,312	2,312
Britain and Canada.....	2,974	2,974	2,974	2,974	2,974
United States.....	547,475	570,767	754,245	828,661	839,024
United States and Canada.....	205,921	141,079	132,846	97,207	84,487
Britain, United States and Canada.....	151,391	144,651	140,963	98,854	60,451
Switzerland.....	—	—	—	—	9,103
Totals.....	2,869,656	2,962,143	3,348,637	3,414,109	3,709,394

¹ Excludes bonds assumed by the provinces.

31.—Provincial Government Direct and Indirect Debt (less Sinking Funds), as at Mar. 31, 1961

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Direct Debt—													
Funded Debt—													
Bonded debt.....	76,500	28,480	295,860	244,881	532,153	1,692,431	298,892	449,127	16,104 ²	75,806	—	—	3,710,294
Less sinking funds.....	11,089	5,396	58,080	63,481	148,093	206,666	48,973	43,339	—	75,806	—	—	655,863
Net bonded debt.....	65,411	23,084	237,780	181,400	384,120	1,485,765	254,919	405,788	16,104	—	—	—	3,054,431
Net treasury bills.....	—	—	—	22,944	—	—	27,704	21,521	8,003	—	—	—	80,172
Net Funded Debt.....	65,411	23,084	237,780	204,344	384,120	1,485,765	282,623	427,309	24,167	—	—	—	3,134,603
Short-term treasury bills ¹	—	—	8,660	—	27,500	—	26,408	—	—	—	—	—	62,568
Temporary loans and overdrafts.....	1,572	5,841	11,228	11,148	—	1,402	—	—	—	655	—	—	31,846
Trust funds, savings and other deposits.....	—	3,336	1,221	1,268	—	122,026	14,877	5	20	10,344	52	—	153,496
Accounts and other payables.....	4,706	297	11,968	13,447	63,187	76,187 ²	3,586	2,744	13,578 ²	24,233	2,814	754	217,501
Accrued interest and other accrued expenditure.....	—	337	2,943	4,734	5,468	39,850	11,528	4,698	138	—	30	—	69,726
Totals, Direct Debt (less Sinking Funds).....	71,689	32,895	273,800	234,941	480,622³	1,725,230	339,022	434,756	37,903	33,232	2,896	754	3,669,740
Indirect Debt—													
Guaranteed bonds or debentures.....	15,617	1,579	3,790	26,340	848,350	1,567,440	131,971	9,500	182,940	574,159	—	—	3,361,686
Less sinking funds.....	—	—	497	419	22,021	16,609	3,015	—	1,167	38,811	—	—	82,569
Net guaranteed bonds or debentures.....	15,617	1,579	3,293	25,921	826,329	1,550,831	128,956	9,500	181,773	535,348	—	—	3,279,117
Guaranteed bank loans.....	6,741	—	3,233	2,453	605	4,669	140	3,255	1,764	1,380	—	—	26,185
Municipal Improvement Assistance Act loans.....	—	2	236	106	842	—	—	117	94	239	—	—	1,036
Other guarantees.....	27,852	—	—	—	—	—	20,000	2,183	117	78,508	—	—	128,543
Totals, Indirect Debt (less Sinking Funds).....	50,210	3,526	6,762	28,480	827,776	1,555,500	149,096	15,655	183,601	615,475	—	—	3,435,481
Totals, Direct and Indirect Debt (less Sinking Funds).....	121,899	36,421	280,562	263,421	1,308,398	3,280,730	488,118	449,811	221,504	650,707	2,896	754	7,105,221
Direct debt (less sinking funds) per capita.....	157	313	372	393	91	277	368	470	28	22	207	33	201
Indirect debt (less sinking funds) per capita.....	110	43	9	48	157	249	162	16	138	378	—	—	188

¹ Includes bonds issued by the Ontario Junior Farmer Establishment Loan Corporation \$20,000,000, and by the Ontario Municipal Improvement Corporation \$40,850,000; also bonds assumed from issuing authorities \$300,000.

² Excludes bonds due \$4,000.

³ Having a term of two or more years.

⁴ Having a term of two or more years.

⁵ Excludes debt of toll road authority.

Section 5.—Municipal Public Finance

Subsection 1.—Municipal Assessed Valuations and Taxation

Table 32 shows municipal assessed valuations and total exemptions, by province, for the year 1959 together with local taxes levied by municipalities and by some school authorities and total taxes outstanding at the end of the year. Assessment figures in the various provinces are not entirely comparable as there are still variations in methods, schedules and rates, not only between provinces but also between municipalities within the same province.

32.—Municipal Assessed Valuations and Taxation, by Province, 1959

Item	Newfoundland ¹	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
Assessed Valuations						
Taxable Valuations on which Taxes are Levied—						
Real property..... \$'000	8,157	34,748	694,023	442,019	8,132,710	7,710,919
Personal property..... "	—	7,027	106,076	103,479	..	...
Business..... "	2,975	7,773	31,328	23,750	..	957,174
Other ² "	—	—	15,789	4,373	—	—
Totals..... \$'000	11,132	49,548	847,216	573,621	8,132,710	8,668,093
Total exemptions ³ \$'000	..	7,561 ⁴	387,888	..	2,633,538 ⁵	1,578,617 ⁴
Taxation						
Tax levy..... \$'000	3,825	2,138	31,951	27,191	332,599	530,017
Tax Collections, Current and Arrears—						
Total..... \$'000	3,641	1,961	30,466	25,864	..	521,926
Percentage of levy..... p.c.	95.19	91.72	95.35	95.12	..	98.47
Taxes receivable, current and arrears..... \$'000	1,304	723	10,319	9,692	43,532	53,827
Percentage of levy..... p.c.	34.09	33.82	32.30	35.64	13.08	10.15
	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon ⁶	N.W.T. ⁷
Assessed Valuations						
Taxable Valuations on which Taxes are Levied—						
Real property..... \$'000	1,019,009	1,130,610	1,505,288	1,721,747	12,247	4,203
Personal property..... "	8,792	..	..	..	..	..
Business..... "	44,521	58,129	73,365	..	..	2,506
Other ² "	—	350	410	—	—	—
Totals..... \$'000	1,072,322	1,189,089	1,579,063	1,721,747	12,247	6,709
Total exemptions ³ \$'000	233,154	604,809	322,113 ⁴	1,605,372 ⁵	6,354	3,731

For footnotes, see end of table.

32.—Municipal Assessed Valuations and Taxation, by Province, 1959—concluded

Item		Manitoba	Saskat- chewan	Alberta	British Columbia	Yukon ⁶	N.W.T. ⁷
Taxation							
Tax levy.....	\$'000	61,639	75,396	100,201	115,530	135	368
Tax Collections, Current and Arrears—							
Total.....	\$'000	59,997	71,468	98,771	114,708	139	311
Percentage of levy.....	p.c.	97.34	94.79	98.57	99.29	102.96	84.28
Taxes receivable, current and arrears.....	\$'000	12,183	20,405	20,912	6,663	57	70
Percentage of levy.....	p.c.	19.72	27.06	20.87	5.77	42.22	18.97

¹ City of St. John's only. ² Includes: N.S.—household tax, Halifax; N.B.—occupancy tax, Fredericton, and rentals tax, Moncton; Sask.—special franchise. ³ Total of valuations assessed but exempt from taxation; excludes exempt property not assessed. ⁴ Incomplete. ⁵ Excludes permissive exemptions. ⁶ Cities of Dawson and Whitehorse. ⁷ Yellowknife only. ⁸ Excludes partial statutory and permissive exemptions.

Because of the considerable differences in the division of responsibility for services between the provincial governments and their respective municipalities, extreme caution should be exercised in using the figures in Table 32 as a basis for interprovincial comparisons of the relative burden of municipal taxation. Also, in Saskatchewan municipalities are required to levy certain taxes for and on behalf of hail insurance associations and rural telephone companies and for other special purposes for which there is no comparable situation in other provinces. The amounts of such taxes excluded in the Saskatchewan municipal levies in Table 32 are as follows:—

<i>Tax</i>	1955	1956	1957	1958	1959
	\$	\$	\$	\$	\$
Hail.....	2,872,218	2,684,147	2,290,566	2,358,432	2,241,283
Telephone.....	904,568	897,318	941,769	968,974	981,743
Drainage.....	7,593	2,834	11,450	50,907	1,526
TOTALS.....	3,784,379	3,584,299	3,243,785	3,378,313	3,224,552

Subsection 2.—Municipal Revenue, Expenditure and Debt

Tables 33, 34 and 35 show comparative totals and details of gross ordinary revenue and expenditure of municipal governments, by province. Table 36 sets out the direct and indirect debt of local governments for the year 1959. The amounts shown include debt incurred for general and school purposes, debenture debt incurred for and by utilities, and debenture debt incurred by certain special areas organized to provide specific local services.

33.—Gross Ordinary Revenue and Expenditure of Municipal Governments, by Province, Fiscal Years Ended Nearest Dec. 31, 1959

Province	Gross Ordinary Revenue	Gross Ordinary Expenditure	Province or Territory	Gross Ordinary Revenue	Gross Ordinary Expenditure
	\$'000	\$'000		\$'000	\$'000
Newfoundland.....	6,518	6,329	Saskatchewan.....	99,787	98,173
Prince Edward Island.....	2,888	2,807	Alberta.....	153,447	151,530
Nova Scotia.....	42,463	42,450	British Columbia.....	169,302	167,000
New Brunswick.....	38,028	37,341	Yukon Territory.....	431	419
Quebec.....	414,671	415,298	Northwest Territories.....	591	518
Ontario.....	751,887	743,958			
Manitoba.....	84,561	83,720	Totals.....	1,764,574	1,749,543

34.—Details of Gross Ordinary Revenue of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1959

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Taxes—													
General and School—													
Real property.....	2,304	1,571	23,873	18,598	201,134	511,737	51,707	70,921	86,021	105,390	135	282	1,073,673
Personal property.....	6	204	5,000	4,307		1	1	1	5,837	3,273	...	...	9,517
Business.....	845	214	1,332	1,601	21,276	128	4,697	1,035	...	...	...	2	39,135
Poll.....	121	145	1,075	2,209			9	1,201	...	...	...	7	4,729
Amusement.....	85	...	...	...	1,613	...	...	512	...	...	...	...	1,899
Sales.....	439	...	...	...	72,923	...	509	...	...	...	...	...	74,383
Household and tenant.....	...	...	308	212	1,952	...	...	85	...	825	...	...	520
Other.....	20	—	—	148		—	58	...	...	...	—	—	3,088
Special assessments (owners' share) and charges.	5	4	303	116	33,701	18,152	4,659	2,642	8,343	6,042	—	79	74,046
Totals, Taxes.....	3,825	2,138	31,951	27,191	332,599	530,017	61,639	75,396	100,201	115,530	135	368	1,280,990
Licences and permits.....	131	59	403	224	5,565	6,759	1,550	1,918	2,000	6,066	34	9	24,748
Interest, tax penalties, etc.....	17	3	404	223	5,899	6,375	1,083	1,216	1,493	2,049	5	3	18,770
Contributions, Grants and Subsidies—													
Governments.....	1,244	429	5,384	7,826	7,813	126,095	8,736	8,763	24,830	25,783	192	198	217,293
Government enterprises.....	121	105	652	312	20,036	5,764	2,490	4,521	8,113	3,260	12	3	45,389
Other.....	181	1	476	17	2,630	758	450	1,003	134	139	—	—	5,789
Debtenture debt charges recoverable.....	384	79	1,005	1,196	27,283	35,388	4,316	3,085	7,084	3,853	34	—	83,707
Miscellaneous revenue.....	477	54	1,317	750	12,816	30,637	1,953	3,646	9,167	11,321	19	10	72,197
Totals, Revenue.....	6,380	2,868	41,592	37,739	414,671	741,793	89,217	99,548	153,052	168,001	431	591	1,748,883
Surplus from previous years.....	138	20	871	289	—	10,094	2,344	239	395	1,301	—	—	15,691
Grand Totals.....	6,518	2,888	42,463	38,028	414,671	751,887	84,561	99,787	153,447	169,302	431	591	1,764,574

* Included with real property.

* Less than \$500.

35.—Details of Gross Ordinary Expenditure of Municipal Governments, Fiscal Years Ended Nearest Dec. 31, 1959

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Total
	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000
General government.....	708	191	2,879	2,873	35,702	48,410	5,016	6,818	7,631	10,468	51	66	120,843
Protection of persons and property.....	298	295	5,436	3,839	47,231	89,544	9,765	6,914	15,623	24,208	73	31	203,257
Public works.....	1,702	277	2,255	2,350	54,184	112,769	12,313	17,857	22,426	14,291	75	49	240,518
Sanitation and waste removal.....	553	6	908	503	9,843	32,624	3,037	2,472	5,304	5,710	35	39	61,124
Health.....	11	9	2,447	1,625	15,402	15,531	1,533	5,606	8,343	2,219	—	16	52,742
Social welfare.....	...	30	2,093	1,259	5,517	38,437	3,819	4,503	3,337	15,462	1	64	74,521
Education.....	206	1,106	14,536	14,416	87,479	188,460	22,745	34,059	36,119	50,559	...	132	449,817
Recreation and community services.....	199	50	939	685	10,207	24,257	2,066	2,672	4,515	7,661	7	16	53,274
Debt Charges—													
Debenture.....	1,134	611	8,074	6,960	127,648	138,386	14,151	10,501	33,945	24,422	63	17	385,912
Other.....	107	75	1,020	622	1,436	7,838	190	560	487	675	1	3	13,013
Utilities and other municipal enterprises (deficits and levies).....	537	48	83	436	4,255	3,011	1,213	368	2,287	1,613	34	34	13,919
Provision for reserves.....	49	41	707	492	1,629	5,664	2,571	1,640	1,617	2,073	19	18	16,520
Capital expenditure out of revenue.....	732	56	470	300	10,986	23,361	3,278	2,682	6,108	6,221	47	21	54,260
Joint or special expenditure.....	—	—	—	—	—	5,011	359	—	721	468	—	—	6,559
Miscellaneous expenditure.....	93	12	385	891	3,779	9,182	732	1,505	2,930	921	15	12	20,457
Totals, Expenditure.....	6,329	2,807	42,232	37,341	415,298	742,485	82,818	98,157	151,391	166,971	419	518	1,716,766
Deficit from previous years.....	—	—	218	—	—	1,473	902	16	139	20	—	—	2,777
Grand Totals.....	6,329	2,807	42,450	37,341	415,298	743,958	83,720	98,173	151,530	167,000	419	518	1,719,543

1 Less than \$500.

36.—Debt of Municipal and School Corporations, as at Fiscal Year-Ends Nearest to Dec. 31, 1959

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Direct Debt (less Sinking Funds)—													
Debtenture debt.....	16,153	7,861	80,322	85,153	1,147,401	1,399,502	134,288	126,596	404,187	401,414	1,016	203	3,804,096
Less sinking funds.....	96	1,552	7,202	6,829	12,404	31,079	18,194	8,826	3,245	43,510	—	—	132,937
Net debtenture debt.....	16,057	6,309	73,120	78,324	1,134,997	1,368,423	116,094	117,770	400,942	357,904	1,016	203	3,671,159
Temporary loans and bank overdrafts.....	739	720	12,720	7,799	108,087	80,442	14,178	6,595	8,173	6,828	—	—	246,281
Accounts payable and other liabilities.....	2,063	204	13,182	4,395	114,653	115,511	14,902	19,369	35,624	18,478	84	90	338,555
Totals, Direct Debt (less Sinking Funds).....	18,859	7,233	99,022	90,518	1,357,737	1,564,376	145,174	143,734	444,739	383,210	1,100	293	4,255,995
Indirect Debt (less Sinking Funds)—													
Guaranteed bonds or debentures.....	—	—	1,208	4,114	66,230 ¹	5,650	2,839	—	—	—	—	—	80,141
Less sinking funds.....	—	—	313	—	1,549	—	—	—	—	—	—	—	1,862
Net guaranteed bonds or debentures.....	—	—	895	4,114	64,681	5,650	2,839	—	—	—	—	—	78,279
Guaranteed bank loans.....	—	—	—	—	—	—	—	—	15	—	—	—	15
Totals, Indirect Debt (less Sinking Funds).....	—	—	895	4,114	64,681	5,650	2,839	—	15	—	—	—	78,294
Grand Totals.....	18,859	7,233	99,917	94,632	1,422,418	1,570,026	148,113	143,734	444,754	383,210	1,100	293	4,334,289

¹ Debentures of the Montreal Transportation Commission guaranteed by the City of Montreal, not previously in DBS publications.

CHAPTER XXII. — NATIONAL ACCOUNTS, SURVEY OF PRODUCTION AND BALANCE OF INTERNATIONAL PAYMENTS AND INVESTMENTS*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

In this Chapter various statistical statements and studies are presented in which broad areas of Canadian economic activity are covered in a comprehensive but summary form. These integrated aggregative economic accounts provide an inter-related framework for economic analysis and the observation of changes in the functioning of the Canadian economy and its structure and in economic and financial relationships with other countries.

Section 1.—National Accounts

The national accounts constitute a set of accounting summaries for the nation as a whole and portray economic activity in terms of transactions taking place between different sections of the economy. By combining and summarizing these operations into their various classes, information may be obtained on the functioning of the economy which is of particular interest to governments concerned with problems of full employment, taxation and prices, and to businessmen concerned with programs of investment and marketing.

This measurement of the nation's output is in terms of established market prices; hence it is necessary to keep in mind that the value of the nation's production may change because of price variations as well as through increase or decrease in volume of output.

Data are available showing volume changes in gross national expenditure in addition to the value figures. Gross national expenditure is shown in Table 4 in constant dollars (i.e., in terms of 1949 prices). Because the gross national expenditure equals the gross national product, these data also reflect volume changes in the production of goods and services as measured by the gross national product. In all other tables the data are expressed in current dollars so that year-to-year changes must be considered in relation to price changes over the period.

National accounts calculated on a quarterly basis are a logical extension of the annual national accounts and have been published since 1953. However, their preparation on a reliable and analytically useful basis is rather more difficult because of the scarcity of quarterly data, special problems arising from the measurement of farm production and problems in connection with seasonal variation.

*Prepared in the National Accounts and Balance of Payments Division, Dominion Bureau of Statistics.

The tables in this Section cover the more important aspects of the national income analysis in annual terms. Table 1 gives total gross national product in current and constant dollars for the years 1926-61. Tables 2 and 3 show the main aggregates of national income, gross national product, gross national expenditure and their components; other tables are included to show the source and disposition of personal income, government revenue and expenditure and personal expenditure on consumer goods and services.

National Income.—Net national income at factor cost measures the current earnings of Canadian factors of production (i.e., land, labour, capital) from productive activity. It includes wages and salaries, profits, interest, net rent and net income of farm and non-farm unincorporated business.

Gross National Product.—Gross national product, by totalling all costs arising in production, measures the market value of all final goods and services produced in the current period by Canadian factors of production. It is equal to national income plus net indirect taxes (indirect taxes less subsidies), plus capital consumption allowances and miscellaneous valuation adjustments.

Personal Income.—Personal income is the sum of current receipts of income whether or not these receipts represent earnings from production. It includes transfer payments from government (such as family allowances, unemployment insurance benefits and war service gratuities) in addition to wages and salaries, net income of unincorporated business, interest and dividends and net rental income of persons. It does not include undistributed profits of corporations and other elements of the national income not paid out to persons.

Gross National Expenditure.—Gross national expenditure measures the same aggregate as gross national product, namely, total production of final goods and services at market prices, by tracing the disposition of production through final sales to persons, to governments, to business on capital account (including changes in inventories) and to non-residents (exports). Imports of goods and services, including net payments of interest and dividends to non-residents, are deducted since the purpose is to measure only Canadian production.

Economic Activity in 1961.—The advance in gross national product was resumed in 1961. During the previous year the trend of economic activity had eased as downward tendencies developed in several components of end-product demand. These downward pressures were largely reversed in 1961 and, following a weak first quarter, the level of activity moved on a rising trend for the remainder of the year. By the final quarter of the year, the gross national product was running at a seasonally adjusted annual rate about 3 p.c. above the 1961 annual average in terms of current dollars, and almost 3 p.c. higher in terms of the physical volume of production. For 1961 as a whole, the gross national product amounted to \$36,800,000,000, 2.5 p.c. above 1960 in value terms, and almost 2 p.c. higher in terms of the physical volume of output. The year's economic performance was marred by a poor crop out-turn in Western Canada, estimated to have been lower than in 1960 by about \$400,000,000; this represents a production loss of about 1 p.c. on a gross national product base of \$36,800,000,000.

The upswing in activity in 1961 was characterized by sharply rising exports—to the United States, where a strong recovery from the 1960 business down-turn was under way—and to Communist China and Eastern Europe where special sales of wheat raised the level of agricultural exports to new levels. Also, the decline in business outlays for new plant and equipment was reversed in the last half of the year. Business inventories, which had been liquidated briefly in 1960, were being accumulated at a modest rate throughout most of 1961; in the fourth quarter of the year the build-up became more pronounced and added a sizable element of new strength to the expansion of total demand. Consumer expenditure, following a small but unusual decline in the first quarter, advanced moderately thereafter, with outlays for consumer durable goods showing a sharp recovery during the course of the year. Government outlays for new goods and services continued to give support to the

rising level of total demand throughout 1961. Outlays for new housing showed little pronounced trend during the year but moved irregularly at a level only slightly above the average for 1960 as a whole.

These developments on the demand side during 1961 were accompanied by changes in the direction and magnitude of the income flows. The down-trend in corporation profits, which was a prominent feature of 1960, was sharply reversed in 1961 and by the fourth quarter of the year corporation profits were running at a seasonally adjusted annual rate about 30 p.c. ahead of the first quarter trough and 4 p.c. above the previous peak in the fourth quarter of 1959. The trend of labour income was more strongly upward in 1961 than in 1960, with the fourth quarter rate at a level some 6 p.c. above the same period of the previous year. The revenues of the government sector reflected this rising flow of incomes during 1961, as well as higher levels of imports and sales, with the result that the deficit on consolidated government account was somewhat narrower in the last half of the year.

Production and Employment.—The increase of close to 2 p.c. in the volume of total output in 1961 was mainly attributable to gains in the service industries, where production is estimated to have risen by about 3 p.c. In the goods-producing industries the advance in production was fractional, amounting to only about one-half of 1 p.c. This latter development reflected in part the sharp drop in crop production in 1961 and also a decline in output in the forestry industry. Most other goods-producing industries showed sizable advances in 1961.

Production of manufactured goods was higher than in the previous year, by 2.0 p.c.; non-durable goods were up by 3.5 p.c. and durables by about 0.5 p.c. in terms of the annual averages. However, it may be noted that, within the year 1961, the durables group showed a better performance, rising by 12 p.c. between January and December compared with a 7-p.c. advance in the non-durables group for the same period. In part, these differences reflect the fact that the decline in the production of durables during the previous year was much steeper than that which occurred in the production of non-durable goods.

All main non-durable manufacturing groups showed gains in 1961 with the exception of the clothing products group, which was unchanged. Gains ranged from 1 p.c. in chemicals and in printing and publishing to more than 10 p.c. in leather and textile products. Rubber products were higher by 2 p.c., foods and beverages, paper products and petroleum products by 3 p.c., and tobacco products by 6 p.c. Strength in the textile group was particularly widespread, with all components higher, particularly cottons and synthetics.

Changes in the major groups of durables manufacturing were mostly marginal, being of the order of 1 p.c. The one exception was a 4-p.c. gain in non-metallic mineral products, which reflected greater activity in the construction-oriented industries. Despite a 7-p.c. gain in primary steel, the iron and steel products group as a whole was only slightly higher, reflecting declines in agricultural implements and in the bridge and structural steel industry. A decline of 1 p.c. took place in total transportation equipment production. The output of Canadian mines increased by almost 4 p.c. in 1961, reflecting for the most part considerably higher crude petroleum and natural gas production. Although metal mining was regaining some of the lost ground toward the end of 1961, the year as a whole was some 7-p.c. lower than 1960, associated with the continued decline of uranium production and lower iron ore output; nickel and lead showed strong gains throughout the year. Non-metal mining was 10 p.c. higher, reflecting a large increase in asbestos output. Among the other goods-producing industries, output in the public utilities industry increased by 7 p.c. in 1961 and output in the construction industry by 3 p.c.

Within the service industries, all major groups showed advances in 1961, including gains of 5 p.c. in transportation, storage and communications, 3 p.c. in finance, insurance and real estate, 2 p.c. in trade and 4 p.c. in government service. The 5-p.c. gain in transportation, storage and communications reflected advances in air transport, water transport, and oil and gas pipelines; the volume of output in urban and suburban passenger services declined further in 1961, while the volume of railway services showed no change.

Within the trade group, sales volume changes were small. The larger increases occurred in the variety, furniture, appliance and radio stores, while the more notable declines were in the motor vehicle and farm implement trades. The gain in the volume of output in the government service reflected mainly higher employment at the provincial and municipal levels of government.

These developments in the production of goods and services in 1961 were closely matched by corresponding changes on the employment side. Total employment, like output, rose by 2 p.c. over the previous year, implying little change in the rate of output per person employed. The highest rates of gain, approaching 6 p.c. in some cases, occurred in the services groups, while employment in the goods-producing industries, with the exception of manufacturing, was lower. The advance of 3 p.c. in manufacturing employment in 1961 contrasts with the decline of about 1.5 p.c. in the previous year. The increases in the manufacturing and service industries more than accounted for the total increase in employment but there were some offsetting declines in the construction and other primary industries.

In the early months of the year there was a downward movement in the level of employment in the predominantly male-employing manufacturing and construction industries, but by spring this was reversed, and a rising trend emerged for the remainder of the year. The labour market continued to offer relatively more opportunities for women than for men in 1961 although the disparity was less marked than in 1960. The increase in the number of employed women was about 5 p.c., whereas the increase in the number of employed men was only 0.5 p.c. The narrowing of the difference between 1960 and 1961 reflects mainly the improvement in job opportunities in the more cyclically sensitive manufacturing industries during the course of 1961.

Prices.—Price changes were small in 1961. From the fourth quarter of 1960 through to the fourth quarter of 1961, the price of all goods and services as measured by the implicit gross national expenditure price deflator is estimated to have risen by only about 0.5 p.c. For the year as a whole, the over-all price increase was the smallest for several years, amounting to less than 1 p.c. over the average for the full year 1960. The price component of imports of goods and services is estimated to have risen almost 3 p.c., associated with the exchange rate decline after mid-year.* This development was also reflected in the price component of machinery and equipment investment, which has a high import content. In the consumer sector, there was little change in the price component of total goods sold at retail, but the price of services continued to increase although at a somewhat slower rate than in the recent past. It may be noted that the introduction of a 3-p.c. retail sales tax by the Province of Ontario in September was reflected in the relatively small increase in prices at the consumer level in 1961.

Since imports are excluded by definition from the gross national product, the increase in import prices which followed the decline in the exchange rate after mid-year is not reflected in the over-all implicit price deflator of gross national expenditure.

The Components of Demand.—After a weak first quarter, consumer spending picked up in succeeding quarters and for the year 1961 as a whole reached \$24,300,000,000, a gain of 4 p.c. over the level of the preceding year. Price increases were again moderate, amounting to less than 1 p.c., so that most of the rise in spending represented an increase in real consumption.

As in the recent past, the strongest rate of growth came from spending on services, which was up almost 5 p.c. in 1961. Most of the service categories registered some gains, the sharpest rate of advance being the 9-p.c. increase in spending for medical care. Spending for shelter is estimated to have risen by 5 p.c., for transportation by 3 p.c. and for personal services by 5 p.c.

In 1961, as in 1960, purchases of durables showed little change. The increase of 1 p.c. compares with the marginal decline recorded in 1960. All the advance in spending was for durables other than automobiles; purchases of cars were almost unchanged. There were

* See p. 1110.

increases in purchasing of the three categories of household durables, home furnishings, appliances and radios and furniture. These year-to-year comparisons for the durables group conceal a changing trend within the year. A sharp decline in the first quarter, reflecting a drop in automobile purchases, was followed by an up-turn in durable buying in the three succeeding quarters of the year. The greatest strength was shown in the third quarter, where outlays for all classes of durable goods were advancing.

Spending for non-durables rose by nearly 4 p.c. in 1961. The increases in spending were well distributed over the non-durable categories. Among the larger items were increases in food and clothing of 2 p.c., tobacco and alcoholic beverages of 2.5 p.c., fuel of 3 p.c., and household cleaning supplies of 5 p.c.

Personal income in 1961 was higher than in the previous year by a little over 3 p.c.; however, an increase of 6 p.c. in direct taxes paid by persons reduced the gain in disposable income to just under 3 p.c. This represented a considerably smaller advance than the 4-p.c. rise in consumer spending so that the rate of personal saving declined from 5.9 p.c. of disposable income in 1960 to 5.1 p.c. in 1961.

Business gross fixed capital formation, including housing, was estimated at \$6,500,000,000 in 1961, a decline of about 3 p.c. from the 1960 level. All of the decline was centred in business outlays for plant and equipment, which were lower by about 4 p.c.; outlays for new housing were very little changed from the levels of the preceding year. The 4-p.c. decline in outlays for plant and equipment reflected a large drop, amounting to 11 p.c., in business investment for new machinery and equipment; non-residential construction expenditures in 1961 were higher than the previous year by close to 3 p.c.

The over-all decline in outlays for plant and equipment in 1961 reflected a considerable falling off in investment activity in the durable manufacturing industries, in transportation and in trade. The low point in outlays appears to have been reached in the second quarter, followed by some recovery in the latter part of the year. By the fourth quarter of 1961, the seasonally adjusted rate of plant and equipment investment was running about 4 p.c. above the 1961 annual average, although it was 15 p.c. below the record peak reached in the first quarter of 1957.

The decline of 11 p.c. in outlays for new machinery and equipment in 1961 reflected major cutbacks in the programs of the manufacturing and utilities group. The drop of 10 p.c. in expenditures by manufacturers in the face of a rising level of production suggests a lack of any general pressures on productive capacity during the year. The 19-p.c. decline in machinery and equipment investment by the utilities group is associated with the completion of major projects by the railways and electric power utilities.

The relatively small gain in outlays for non-residential construction in 1961 was associated mainly with a sharp increase in expenditures undertaken by the mining industry and an expanded building program in the institutional sector; both hospitals and universities undertook larger capital programs in 1961. However, these increases were partially offset by reduced spending in the manufacturing industries, particularly the primary metals group and the group processing products of petroleum and coal.

The total value of housing put-in-place showed little change between 1960 and 1961. At a level of \$1,500,000,000, the total value of housing construction was only about 1 p.c. above that of the previous year. The number of housing units started in 1961 rose from 109,000 in 1960 to 126,000 (16 p.c.) but the number of units completed fell from 124,000 to 116,000 (6.5 p.c.). The rate of starts, which had risen sharply in the latter part of 1960 and early 1961, in association with the liberalization of lending terms under the National Housing Act, was lower in the last three quarters of the year. The approval of loans under the National Housing Act increased by 67 p.c., to 63.044 in the year; direct lending by Central Mortgage and Housing Corporation increased by just over \$100,000,000 to a level of \$271,000,000.

Except in the fourth quarter, when there was a pronounced building up of stocks, accumulation of business inventories had only a small impact on the rate of economic

activity in 1961. Manufacturers' stocks were being depleted at an increasing rate until the fourth quarter when the movement was sharply reversed. The last quarter's accumulation spread through every stage of fabrication and this build-up was accompanied by rising new orders and a mounting backlog of unfilled orders. Despite this fourth quarter build-up, however, the ratio of stocks to sales at year-end was the lowest since the end of 1955. The build-up of inventories in wholesale and retail trade was also most pronounced in the closing quarter of the year, particularly at the wholesale level where a sharp turn-around occurred. In both groups the quarterly pattern was to a large extent a reflection of partially offsetting movements in stocks of durable and non-durable goods.

Canada's exports of goods and services rose to \$7,600,000,000 in 1961, an increase of nearly 8 p.c. over the level of 1960. At the same time, imports of goods and services rose by 4 p.c. Thus, the contraction in the deficit on international current account from \$1,100,000,000 to \$900,000,000 (on the National Accounts basis) was one of the notable developments of the year; the deficit in 1961 was the smallest in any year since 1955. Among the factors raising the value of Canadian trade was the change in the exchange rate of the Canadian dollar. The improvement in the deficit was wholly attributable to the emergence of a surplus in merchandise trade, the first in many years; the deficit on invisible transactions continued to rise to reach the highest level on record, partly because of the unusually high level of dividends paid abroad in the first quarter of the year.

Merchandise exports followed a rising trend through the year and for the year as a whole were \$5,900,000,000, 9 p.c. higher than in 1960, most of this rise being in volume. Among the influences fostering the growth in exports was the recovery in the United States from a mild and short-lived recession and the large sales of wheat to Communist China and Eastern Europe. Exports were also notably higher to Japan, Latin America and some countries in Western Europe. Exports to Britain were unchanged, while exports to other countries of the Sterling Area declined slightly. The rise in wheat exports accounted for about half the total increase in exports in 1961. Other important contributors were such commodities as nickel, forest products, petroleum and natural gas, cattle and aircraft. Partially offsetting these increases were reduced sales of such major commodities as uranium, iron ore, copper and aluminum.

Merchandise imports, estimated at \$5,700,000,000, were up about 3 p.c. in 1961, most of the increase being accounted for by the rise in prices of imports. The record value in 1961 compares with a previous peak of \$5,600,000,000 in 1956, when import prices were considerably lower. The advance in imports was concentrated in the second half of the year and reflects the renewal of expansionary influences at that time. The gain in imports was widely distributed by commodities. Preliminary data indicate increased imports of many industrial materials and machinery and equipment items and, toward the end of the year, increased purchases of some grain and other agricultural products to help make good the loss in production in Western Canada. Imports of some other types of consumer goods were also higher at the end of the year.

Turning to consider the service account, receipts from services rose by nearly 4 p.c. and payments for services rose by nearly 6 p.c. The major factor on the side of payments was a more than 15-p.c. rise in the outflow of interest and dividends, a large part of which was concentrated in the first quarter of the year. On the receipts side, there was a considerable rise in income from tourism and travel expenditures, partially offset by changes in other items.

Government expenditures on goods and services exerted an expansionary influence on the economy in 1961. At an estimated level of \$7,200,000,000, they were 7.5 p.c. higher than in 1960. The highest rate of increase was in Federal Government outlays for purposes other than defence—14.7 p.c.—but defence expenditure was also up significantly. The substantial rise in non-defence outlays reflected higher wage and salary payments, increased public investment outlays, and the accumulation of inventories held by the Agricultural

Stabilization Board. At the same time, outlays by provincial and municipal governments were higher by about 7 p.c. Higher wages and salaries were an important element in the increment at all levels of government.

Transfer payments to persons increased by about 7 p.c. Transfers paid by the Federal Government were only slightly higher; higher payments were made under social security schemes, but this was offset by the fact that the 1960 figures included payments under the Western Grain Producers' Acreage Payment Plan. The major rate of increase—17 p.c.—was at the provincial level. The magnitude of this increase is largely accounted for by the rapidly expanding costs of the hospital insurance schemes and the introduction of the provincial government hospital insurance in Quebec at the beginning of the year. An 11-p.c. increase in municipal transfer payments is mainly attributable to direct relief. These changes in expenditure, together with some increase in interest on the public debt and in subsidies, brought total government outlays, excluding inter-governmental transfers, up 7 p.c. At the same time, government revenues rose, reflecting the improvement in economic conditions during the course of the year and some revisions in tax rates. However, the increase was not as large as in expenditure, so that the gap between revenue and expenditure left a deficit (on a National Accounts basis) of over \$890,000,000 in 1961 compared with one of about \$650,000,000 in 1960.

Income Flows.—Labour income continued to rise in 1961 and, at an estimated \$18,900,000,000, was a little more than 4 p.c. above 1960, an advance somewhat greater than that in the preceding year. The gain reflected the strengthening of the employment situation, which made for increased numbers of paid workers as well as a somewhat longer work week in some industries. Higher average earnings also played a part.

Most industrial divisions shared in the advance in labour income; forestry, mining and construction were the three exceptions. As in the past several years, the major gains were in the service-producing group; labour income in non-government service was up 10 p.c., in government service close to 9 p.c., and in finance, insurance and real estate more than 7 p.c. The advance in the important manufacturing segment, where employment began to pick up during the course of the year, was slightly more than 3 p.c.

Accrued net income of farm operators was at a level of \$927,000,000 in 1961, about 22 p.c. lower than in 1960. All of the decline was attributable to the reduction in grain production resulting from drought conditions in the Prairie Provinces. This factor, along with the greatly increased export demand for wheat, led to a marked drawing down of farm-held grain inventories in 1961. At year-end, the carry-over of grain on farms and in commercial channels was the lowest since 1950. Cash income from the sale of farm products reached an all-time high level in 1961. Major items contributing to the increase were greater returns from the sale of wheat, cattle, calves, poultry, hogs, tobacco and dairy products. The sharp increases in Canadian Wheat Board participation payments and in the undistributed profits of the Wheat Board were a reflection of the higher wheat export sales during the year.

After declining in the first quarter, corporate profits (before taxes and before dividends paid abroad) rose substantially in each of the three succeeding quarters in response to the quickening in economic activity. By the fourth quarter they were at a seasonally adjusted annual rate of \$3,800,000,000, 30 p.c. above the annual rate of \$3,000,000,000 in the first quarter and 4 p.c. above the previous peak attained in the fourth quarter of 1959. For the year as a whole, the increase amounted to about 5 p.c. Among the factors tending to raise corporate profits was the decline in the exchange rate on the Canadian dollar which has pushed up profit margins in a number of commodity-producing industries whose prices are set in world markets.

Most industry groups recorded some increase in profits in 1961. The most pronounced up-trend was in mining, quarrying and oil wells where the year-over-year gain was about 16 p.c. The increase in manufacturing as a whole was 5 p.c. but most of the component groups recorded higher profits. The gain in profits in trade, both wholesale and retail, was relatively small and there was a decline in profits in service industries.

1.—Gross National Product, in Current and Constant (1949) Dollars, 1926-61

Year	Millions of Current Dollars	Millions of Constant (1949) Dollars	Year	Millions of Current Dollars	Millions of Constant (1949) Dollars
1926.....	5,152	7,576	1944.....	11,850	15,927
1927.....	5,549	8,270	1945.....	11,835	15,552
1928.....	6,046	9,037			
1929.....	6,134	9,061	1946.....	11,850	15,251
1930.....	5,728	8,679	1947.....	13,165	15,446
			1948.....	15,120	15,735
1931.....	4,699	7,567	1949.....	16,343	16,343
1932.....	3,827	6,798	1950.....	18,006	17,471
1933.....	3,510	6,359			
1934.....	3,984	7,127	1951.....	21,170	13,547
1935.....	4,315	7,678	1952.....	23,995	20,027
			1953.....	25,020	20,794
1936.....	4,653	8,022	1954.....	24,871	20,186
1937.....	5,257	8,820	1955.....	27,132	21,920
1938.....	5,278	8,871			
1939.....	5,636	9,536	1956.....	30,585	23,811
1940.....	6,743	10,911	1957.....	31,909	24,117 ^r
			1958 ^r	32,894	24,397
1941.....	8,328	12,488	1959 ^r	34,781	25,157
1942.....	10,327	14,816	1960 ^r	35,928	25,617
1943.....	11,088	15,357	1961.....	36,844	26,097

2.—National Income and Gross National Product, by Component, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1122; for 1954 in the 1959 edition, p. 1089; for 1955 in the 1960 edition, p. 1116; and for 1956 in the 1961 edition, p. 1091.

(Millions of dollars)

Item	1957	1958 ^r	1959 ^r	1960 ^r	1961
Wages, salaries and supplementary labour income.....	16,018	16,521	17,463	18,119	18,884
Military pay and allowances.....	476	491	496	509	550
Corporation profits before taxes ¹	2,581	2,605	2,997	2,807	2,850
Rent, interest and miscellaneous investment income.....	1,980	2,104	2,281	2,300	2,529
Accrued net income of farm operators from farm production ²	1,026	1,200	1,118	1,194	937
Net income of non-farm unincorporated business ³	2,008	2,125	2,192	2,190	2,249
Inventory valuation adjustment.....	-78	-35	-130	-55	-86
Net National Income at Factor Cost.....	24,011	25,011	26,417	27,154	27,913
Indirect taxes less subsidies.....	3,861	3,882	4,251	4,446	4,643
Capital consumption allowances and miscellaneous valuation adjustments.....	4,009	3,899	4,159	4,293	4,349
Residual error of estimate.....	28	102	-43	35	-61
Gross National Product at Market Prices.....	31,909	32,894	34,784	35,928	36,844

¹ Excludes dividends paid to non-residents.
net income of independent professional practitioners.

² Includes changes in farm inventories.

³ Includes

3.—Gross National Expenditure, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124; for 1954 in the 1959 edition, p. 1089; for 1955 in the 1960 edition, p. 1117; and for 1956 in the 1961 edition, p. 1092.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Personal expenditure on consumer goods and services.....	20,072	21,245	22,495	23,367	24,253
Government expenditure on goods and services.....	5,722	6,180	6,449	6,683	7,183
Current expenditure.....	4,840	4,791	4,986	5,113	5,667
Gross fixed capital formation.....	1,832	1,369	1,523	1,570	1,610
Business gross fixed capital formation.....	7,335	6,975	6,894	6,692	6,493
New residential construction.....	1,409	1,763	1,784	1,443	1,458
New non-residential construction.....	3,103	2,811	2,589	2,577	2,647
New machinery and equipment.....	2,823	2,401	2,571	2,672	2,338
Value of physical change in inventories.....	231	-322	350	359	-238
Non-farm business inventories.....	305	-197	414	274	209
Farm inventories and grain in commercial channels.....	-74	-125	-64	85	-447
Exports of goods and services.....	6,391	6,340	6,683	7,022	7,578
Deduct: Imports of goods and services.....	-7,813	-7,423	-8,131	-8,160	-8,487
Residual error of estimate.....	-29	-101	44	-35	62
Gross National Expenditure at Market Prices.....	31,909	32,894	34,784	35,923	36,844

4.—Gross National Expenditure in Constant (1949) Dollars, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1124; for 1954 in the 1959 edition, p. 1090; for 1955 in the 1960 edition, p. 1117; and for 1956 in the 1961 edition, p. 1092.

(Millions of dollars)

Item	1957*	1958*	1959*	1960*	1961
Personal expenditure on consumer goods and services.....	16,083	16,585	17,331	17,797	18,318
Government expenditure on goods and services.....	3,833	4,093	4,134	4,190	4,426
Current expenditure.....	2,867	3,044	3,030	3,040	3,203
Gross fixed capital formation.....	968	1,056	1,111	1,159	1,233
Adjusting entry.....	-2	-7	-7	-9	-10
Business gross fixed capital formation.....	5,115	4,761	4,575	4,345	4,178
New residential construction.....	993	1,219	1,157	937	941
New non-residential construction.....	2,112	1,884	1,683	1,637	1,675
New machinery and equipment.....	1,995	1,650	1,735	1,770	1,555
Adjusting entry.....	10	8	—	1	7
Change in inventories.....	210	-286	295	303	-238
Non-farm business inventories.....	246	-158	325	214	169
Farm inventories and grain in commercial channels.....	-89	-141	-95	81	-564
Adjusting entry.....	53	13	65	8	157
Exports of goods and services.....	5,389	5,368	5,574	5,803	6,191
Deduct: Imports of goods and services.....	-6,571	-6,150	-6,776	-6,711	-6,784
Residual error of estimate.....	-22	-74	32	-25	44
Adjusting entry.....	80	100	-8	-85	-38
Gross National Expenditure in Constant (1949) Dollars.....	24,117	24,397	25,157	25,617	26,097
Index of gross national expenditure (1949=100).....	147.6	149.3	153.9	156.7	159.7

5.—Personal Income, by Source, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125; for 1954 in the 1959 edition, p. 1090; for 1955 in the 1960 edition, p. 1118; and for 1956 in the 1961 edition, p. 1093.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Wages, salaries and supplementary labour income.....	16,018	16,521	17,463	18,119	18,884
Deduct: Employer and employee contributions to social insurance and government pension funds.....	-590	-615	-651	-735	-781
Military pay and allowances.....	476	491	496	509	550
Net income received by farm operators from farm production.....	1,026	1,201	1,123	1,188	909
Net income of non-farm unincorporated business.....	2,008	2,125	2,192	2,190	2,249
Interest, dividends and net rental income of persons.....	2,141	2,277	2,551	2,742	2,850
Transfer Payments (excluding interest)—					
From governments.....	2,076	2,637	2,756	3,121	3,343
Charitable contributions from corporations.....	36	38	42	44	45
Totals, Personal Income.....	23,191	24,675	25,972	27,178	28,049

6.—Disposition of Personal Income, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1125; for 1954 in the 1959 edition, p. 1092; for 1955 in the 1960 edition, p. 1118; and for 1956 in the 1961 edition, p. 1093.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Personal Direct Taxes—					
Income taxes.....	1,693	1,554	1,744	1,978	2,126
Succession duties.....	126	126	130	153	146
Miscellaneous taxes.....	98	115	213	221	232
Purchases of goods and services.....	20,072	21,245	22,495	23,367	24,253
Personal net savings.....	1,202	1,635	1,390	1,454	1,292
Totals, Personal Income.....	23,191	24,675	25,972	27,178	28,049

7.—Personal Expenditure on Consumer Goods and Services, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126; for 1954 in the 1959 edition, p. 1092; for 1955 in the 1960 edition, p. 1118; and for 1956 in the 1961 edition, p. 1093.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Foods.....	4,951	5,236	5,466	5,700	5,805
Tobacco and alcoholic beverages.....	1,370	1,441	1,552	1,601	1,640
Clothing and personal furnishings.....	2,098	2,179	2,262	2,358	2,403
Shelter.....	2,906	3,154	3,437	3,627	3,804
Household operation.....	2,593	2,701	2,875	2,912	3,000
Transportation.....	2,346	2,511	2,724	2,804	2,834
Personal and medical care and death expenses.....	1,437	1,611	1,769	1,911	2,041
Miscellaneous.....	2,371	2,412	2,410	2,454	2,726
Totals.....	20,072	21,245	22,495	23,367	24,253
Durable goods.....	2,430	2,499	2,678	2,667	2,694
Non-durable goods.....	10,402	10,878	11,303	11,699	12,139
Services.....	7,240	7,868	8,514	9,001	9,420

8.—Federal, Provincial and Municipal Government Revenue and Expenditure, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1126; for 1951 in the 1959 edition, pp. 1092 and 1094; for 1955 in the 1960 edition, p. 1119; and for 1956 in the 1961 edition, p. 1094.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Revenue					
Direct Taxes: Persons—					
Income taxes.....	1,693	1,554	1,744	1,878	2,126
Succession duties.....	126	126	130	158	146
Miscellaneous taxes.....	98	115	213	221	232
Direct taxes: corporations.....	1,337	1,315	1,580	1,562	1,610
Withholding taxes.....	83	48	72	77	109
Indirect taxes.....	3,977	4,028	4,455	4,681	4,893
Investment Income—					
Interest.....	293	363	421	466	486
Profits of government business enterprises.....	556	574	577	592	626
Employer and employee contributions to social insurance and government pension funds.....	590	615	651	735	781
Totals, Revenue.....	8,753	8,738	9,843	10,470	11,009
Expenditure					
Purchase of goods and services.....	5,722	6,180	6,449	6,683	7,183
Transfer Payments—					
Interest.....	739	782	954	1,079	1,126
Other.....	2,076	2,637	2,756	3,121	3,343
Subsidies.....	116	146	204	235	250
Surplus or deficit (on transactions relating to the National Accounts).....	100	-1,007	-520	-648	-893
Totals, Expenditure.....	8,753	8,738	9,843	10,470	11,009

9.—Analysis of Corporation Profits, 1957-61

NOTE.—Comparable figures for the years 1939, 1944, 1946, 1950 and 1953 are given in the 1957-58 Year Book, p. 1127; for 1951 in the 1959 edition, p. 1094; for 1955 in the 1960 edition, p. 1119; and for 1956 in the 1961 edition, p. 1094.

(Millions of dollars)

Item	1957	1958*	1959*	1960*	1961
Corporation profits before taxes.....	2,581	2,605	2,997	2,807	2,850
Dividends paid to non-residents.....	475	470	501	470	588
Corporation profits including dividends paid to non-residents.....	3,056	3,075	3,498	3,277	3,438
Deduct: Corporation income tax liabilities.....	-1,337	-1,315	-1,580	-1,562	-1,610
Excess of tax liabilities over collections.....	213	24	143	137	36
Tax collections.....	1,550	1,339	1,437	1,485	1,574
Corporation profits after taxes.....	1,719	1,760	1,918	1,715	1,828
Deduct: Dividends paid to non-residents.....	-475	-470	-501	-470	-588
Corporation profits retained in Canada.....	1,244	1,290	1,417	1,245	1,240
Deduct: Dividends paid to Canadian persons.....	-351	-376	-38	-408	-416
Deduct: Charitable contributions from corporations.....	-36	-38	-42	-44	-45
Undistributed Corporation Profits.....	854	876	989	793	779

10.—Corporation Profits before Taxes (including Dividends Paid to Non-residents), by Industry, 1957-61

NOTE.—Comparable figures for the years 1954 and 1955 are given in the 1957-58 Year Book, p. 1127; and for 1956 in the 1959 edition, p. 1094.

(Millions of dollars)

Industry	1957*	1958*	1959*	1960*	1961
Agriculture.....	5	9	10	13	12
Forestry.....					
Fishing and trapping.....					
Mining, quarrying and oil wells.....	322	246	310	348	404
Manufacturing.....	1,489	1,401	1,651	1,462	1,538
Construction.....	150	173	135	120	117
Transportation.....	145	96	131	122	118
Storage.....	8	12	16	13	12
Communications.....	47	81	118	122	132
Electric power, gas and water utilities.....	61	57	69	76	81
Wholesale trade.....	262	241	262	210	213
Retail trade.....	209	241	262	221	223
Finance, insurance and real estate.....	301	445	451	500	521
Service.....	77	73	83	70	67
Totals.....	3,056	3,075	3,498	3,277	3,438

Section 2.—Survey of Production

Scope of the Series.—The scope of the survey of production is limited to industries chiefly engaged in the production of commodities. The activities of such industries as transportation, communications, trade, finance and service are excluded except as certain of their costs are indirectly reflected in the value of output of the commodity-producing industries. This is in contrast to the scope of the gross national product series in the national accounts (see p. 1058) which encompasses all industries.

The term "production" is used in its popularly accepted sense as applied to such processes as the growing of crops, the mining of minerals, the catching of fish, the conversion of water power to electric energy, the construction of buildings and the manufacturing and processing of goods. Primary production includes agriculture, forestry, fisheries, trapping, mining and electric power; construction and manufacturing are classified as secondary production.

In combining value of production figures for a number of industries, it is essential, in order to assess accurately the contribution of each industry to the total, that inter-industry duplication be eliminated. Thus only the "net" value of production, or "value added", is considered in this series. Net value is obtained by deducting from gross value of production, exclusive of excise and manufacturers' sales taxes, the cost of purchased materials, fuel and electricity; purchased services and certain indirect taxes such as licences, property taxes, public domain taxes on oil and gas extraction, etc., are included in net value.

Relation to National Income Accounting.—As already mentioned, "net" production or "value added" is generally considered the most significant measure of production. Value added is computed by deducting from the total value of output (excluding indirect taxes) for each industry, the cost of materials, fuel, purchased electricity and process supplies consumed in the production process. This measurement is similar to but not strictly comparable with the concept involved in the contribution of each industry to the gross domestic product at factor cost. There are conceptual differences as well as problems of classification.

The value of gross domestic* product at factor cost can be measured either directly by summing the factor incomes and capital consumption allowances paid or charged by each industry, or indirectly by subtracting all intermediate goods and services from the revenue (excluding indirect taxes) arising from the production of goods and services in each industry. The latter approach is followed in the compilation of the value added statistics of the survey of production series. These value added residuals for each commodity-producing industry, however, are not exactly equivalent to gross domestic product originating in these industries since they still contain certain miscellaneous indirect taxes such as licences and property taxes as well as the cost of such services as insurance, advertising, communications, etc., which originate in the non-commodity-producing industries. For instance, while the cost of insurance incurred by manufacturers is included in the net value of the manufacturing industry as given in this Section, it is not included in the contribution of manufacturing to total gross domestic product at factor cost.

The data necessary to make the deduction of these business service costs from value added to arrive at a true figure of gross domestic product for each industry and province are not collected. However, available data† indicate that these costs constitute a smaller share of value added for such industries as agriculture and mining than for manufacturing and construction. The contribution to total gross domestic product of the primary industries and of those provinces whose economies are largely dominated by the primary industries is thus proportionately greater than the data contained in this Section indicate. Thus, the measurement of the value of output based on "value added" contains some duplication if it is used as an approximation of gross domestic product originating.

One of the major problems of classification is that the data for three components of the gross domestic product by industry estimates (net income of unincorporated business, investment income, and capital consumption allowances and miscellaneous valuation adjustments) are on an enterprise basis while data for the other components (wages, salaries and supplementary labour income and the inventory valuation adjustment) are on an establishment basis. By contrast, most of the value added data for the commodity-producing industries are on an establishment basis, each unit of an enterprise being treated as a separate entity and classified to the industry in which it operates. A company may own several establishments which are classified to different industrial divisions. The nature of the available data makes it extremely difficult, in compiling industrial distributions of the gross domestic product, to get an accurate breakdown of enterprise-type statistics on a plant-by-plant basis for such companies; for this reason, the adjustment to an establishment basis was not made to the industrial distribution of the gross domestic product series. Nor is a geographical allocation of data available for that series, although the personal income component is capable of provincial distribution. Thus, a major advantage of the net value of commodity production series is that it can be broken down by province. Also, in compiling the gross domestic product series it is difficult to allocate corporation profits according to the provinces in which they are generated by productive activity, but it should be borne in mind that the commodity production estimates by province exclude the non-commodity-producing industries.

Statistics of Commodity Production.—The postwar period 1947 to 1960 has been a period of tremendous growth in commodity production in Canada. The total net value

* The difference between *gross national product* and *gross domestic product* is that the former measures production of Canadian factors of production by excluding interest and dividends paid to non-residents and including interest and dividends from non-resident loans, while the latter measures production within the territorial boundaries of Canada by including interest and dividends accruing to non-residents and excluding interest and dividends receivable from non-residents. For statistical reasons it is not possible to measure the contribution of industries to the *gross national product*.

† See supplement to DBS Reference Paper No. 72 *Supplement to the Inter-Industry Flow of Goods and Services, Canada, 1949*.

of output all but doubled between 1947 and 1955 and increased another 21.3 p.c. by 1960. Among the primary industries, mining showed the greatest absolute increase, advancing from \$402,539,000 to \$1,470,407,000, or by 265.3 p.c. Electric power followed, rising 242.7 p.c. in the same comparison and reflecting a substantial increase in installed generating capacity during the period. However, the great activity experienced by the construction industry all across the country during these years resulted in that industry showing the largest proportionate gain of all the major commodity-producing industries in the 1947-60 comparison; its net value of output rose by 277.4 p.c. from \$963,100,000 to \$3,634,633,000, although the 1960 figure was slightly lower than those for 1957, 1958 and 1959. Manufactures advanced steadily throughout the period, except for slight decreases in 1954 and 1958, reaching a total of \$10,517,333,000 in 1960, a figure 145.0 p.c. above that of 1947.

The shift in relative importance of primary and secondary production during the 1947-60 period is noteworthy. In the earlier year primary production represented 34.4 p.c. of the total net value of Canadian production and secondary output 65.6 p.c.; by 1960 the proportions were 26.4 p.c. and 73.6 p.c., respectively. Internally, agriculture's share of the total net value dropped from 20.1 p.c. to 10.4 p.c. and the relative importance of construction increased from 12.0 p.c. to 18.9 p.c. The contribution of manufacturing remained fairly steady at from 53.6 p.c. to 54.7 p.c.

Tables 11 and 12 show the long-term growth of net output of the commodity-producing industries, by industry and by province. The classification of establishments was revised for the year 1960 in accordance with the Standard Industrial Classification Manual (Catalogue No. 12-501) and the figures for net value of production in certain industries for that year are not comparable with those for previous years. Manufacturing and mining are particularly affected by this revision, although there will be minor changes in forestry and agriculture. Although it is planned to carry the revisions back to 1957, all tabulations had not been completed for the earlier years at the time of writing and for that reason the data shown in the following tables for years previous to 1960 are on the unrevised basis; revised data for mining are included in a footnote to Table 11. It is not expected that the classification changes will have any significant effect on historical comparisons.

11.—Net Value of Production and Percentage Analysis, by Industry, 1947, 1950, 1953 and 1958-60

NOTE.—Net production represents total value under a particular heading, less the cost of materials, fuel, purchased electricity and supplies consumed in the production process. Data for fisheries and trapping represent total value.

Industry	1947		1950		1953	
	Net Value	P.C. of Total	Net Value	P.C. of Total	Net Value	P.C. of Total
	\$'000		\$'000		\$'000	
Primary Industries	2,755,988	34.4	3,442,121	31.5	4,165,603	28.3
Agriculture ¹	1,607,815	20.1	1,886,930	17.2	2,264,297	15.4
Forestry ²	439,029	5.5	487,120	4.5	558,335	3.8
Fisheries.....	57,517	0.7	82,191	0.8	89,833	0.6
Trapping.....	16,843	0.2	15,204	0.1	13,221	0.1
Mining.....	402,539	5.0	657,329	6.0	790,597	5.4
Electric power.....	232,245	2.9	313,347	2.9	449,321	3.0
Secondary Industries	5,255,156	65.6	7,486,758	68.5	10,547,069	71.7
Manufactures.....	4,292,056	53.6	5,942,058	54.4	7,993,069	54.3
Construction.....	963,100	12.0	1,544,700	14.1	2,554,000	17.4
Totals	8,011,144	100.0	10,928,879	100.0	14,712,673	100.0

For footnotes, see end of table.

11.—Net Value of Production and Percentage Analysis, by Industry, 1947, 1950, 1953 and 1958-60—concluded

Industry	1958		1959		1960 ³	
	Net Value	P.C. of Total	Net Value	P.C. of Total	Net Value	P.C. of Total
	\$'000		\$'000		\$'000	
Primary Industries¹	4,561,558	25.2	4,807,773	25.5	5,067,832	26.4
Agriculture ¹	1,925,021	10.6	1,849,997	9.8	2,001,101	10.4
Forestry ²	515,257	2.8	597,998	3.2	687,671	3.6
Fisheries.....	116,530	0.6	105,534	0.6	100,491	0.5
Trapping.....	10,549	0.1	9,707	-	12,360	0.1
Mining.....	1,311,217	7.3	1,497,104	7.9	1,470,407	7.7
Electric power ⁴	682,985	3.8	748,033	4.0	795,802	4.1
Secondary Industries	13,512,160	74.8	14,031,092	74.5	14,151,966	73.6
Manufactures.....	9,792,508	54.2	10,320,963	54.8	10,517,333	54.7
Construction.....	3,719,654	20.6	3,710,129	19.7	3,634,633	18.9
Totals	18,073,718	100.0	18,838,865	100.0	19,219,798	100.0

¹ Excludes agriculture in Newfoundland.² Excludes farm woodlots.

as follows: 1957, \$1,321,000,000; 1958, \$1,324,000,000; and 1959, \$1,513,000,000.

³ Not exactly comparable with previous years; see text, p. 1070.⁴ Method of compilation changed in 1956.

12.—Net Value of Production and Percentage Analysis, by Province, 1947, 1950, 1953 and 1958-60

Province or Territory	1947		1950		1953	
	Net Value	P.C. of Total	Net Value	P.C. of Total	Net Value	P.C. of Total
	\$'000		\$'000		\$'000	
Newfoundland ¹	—	—	104,211	1.0	159,195	1.1
Prince Edward Island.....	22,184	0.3	30,741	0.3	33,649	0.2
Nova Scotia.....	210,127	2.6	262,535	2.4	332,290	2.2
New Brunswick.....	195,887	2.4	244,296	2.2	263,204	1.8
Quebec.....	2,095,223	26.2	2,848,834	26.1	3,819,477	26.0
Ontario.....	3,174,214	39.6	4,484,290	41.0	6,015,710	40.9
Manitoba.....	396,149	4.9	494,943	4.5	569,886	3.9
Saskatchewan.....	519,785	6.5	645,776	5.9	926,272	6.3
Alberta.....	573,419	7.2	765,353	7.0	1,191,919	8.1
British Columbia ²	817,102	10.2	1,030,405	9.4	1,379,480	9.4
Yukon and Northwest Territories ² ..	7,054	0.1	17,495	0.2	21,589	0.1
Canada	8,011,144	100.0	10,928,879	100.0	14,712,673	100.0
	1958		1959		1960 ³	
	Net Value	P.C. of Total	Net Value	P.C. of Total	Net Value	P.C. of Total
	\$'000		\$'000		\$'000	
Newfoundland ¹	190,229	1.0	210,402	1.1	242,671	1.3
Prince Edward Island.....	11,020	0.2	49,873	0.3	50,456	0.3
Nova Scotia.....	394,972	2.2	409,630	2.2	430,928	2.2
New Brunswick.....	305,414	1.7	315,277	1.7	346,801	1.8
Quebec.....	4,672,718	25.8	4,819,283	25.6	4,955,211	25.8
Ontario.....	7,640,747	42.3	7,991,907	42.4	7,950,862	41.4
Manitoba.....	727,605	4.0	743,946	3.9	746,808	3.9
Saskatchewan.....	859,299	4.8	879,264	4.7	1,023,362	5.3
Alberta.....	1,491,941	8.3	1,555,432	8.2	1,565,538	8.1
British Columbia ²	1,714,687	9.5	1,830,441	9.7	1,861,800	9.7
Yukon and Northwest Territories ² ..	31,456	0.2	33,412	0.2	36,331	0.2
Canada	18,073,718	100.0	18,838,865	100.0	19,219,798	100.0

¹ Excludes agriculture in all years, and fisheries and trapping in 1950.
and Northwest Territories are included with British Columbia.

² Construction figures for Yukon
³ Not exactly comparable with previous years; see text on p. 1070.

Net value of Canadian commodity-producing industries reached a record high during 1960 of \$19,220,000,000, a figure 2 p.c. above the 1959 total of \$18,839,000,000. All provinces with the exception of Ontario, which declined fractionally, contributed to this gain. The contribution of individual industries to the total varied from 55 p.c. for manufacturing to less than 0.5 p.c. for trapping. Construction ranked second in importance, contributing 19 p.c., followed by agriculture with 10 p.c. and mining with 8 p.c. Electric power and forestry each contributed 4 p.c. to the total net value and fisheries 0.5 p.c.

The absolute and percentage contributions of each industry by province are given for the two latest years available in Table 13. Preliminary information available for 1961 indicates that the net value of commodity-producing industries in that year was up slightly from the 1960 level. Manufacturing shipments and inventory data suggested an approximate 3-p.c. increase in the value of manufactures compared with 1960. Construction showed a 2-p.c. rise, with increases reported in all provinces except Prince Edward Island, Nova Scotia, New Brunswick and Manitoba. Increases were also indicated for fishing, mining and electric power but decreases for forestry and trapping. Agriculture for Canada as a whole was down 18 p.c. as a result of the poor grain crops in Manitoba and Saskatchewan and lower output values in the Atlantic Provinces; all other provinces recorded increases in net value of agriculture.

13.—Net Value of Production and Percentage Analysis, by Province, 1959 and 1960¹

Industry	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
1959:								
Agriculture.....	20,659	9.8	18,039	36.2	26,674	6.5	28,770	9.1
Forestry.....	14,529	6.9	4,287	8.6	12,306	3.0	23,763	7.5
Fisheries.....	52	--	1	--	27,112	6.6	8,763	2.8
Trapping.....	46,185	22.0	4,516	9.0	131	--	134	0.1
Mining.....	9,521	4.5	1,931	3.9	48,192	11.8	11,622	3.7
Electric power.....	57,755	27.5	7,391	14.8	20,824	5.1	19,307	6.1
Manufactures.....	61,702	29.3	13,708	27.5	161,452	39.4	133,935	42.5
Construction.....					112,940	27.6	88,983	28.2
Totals, 1959.....	210,402	100.0	49,873	100.0	409,630	100.0	315,277	100.0
	Quebec		Ontario		Manitoba		Saskatchewan	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	279,491	5.8	513,654	6.4	171,316	23.0	368,557	41.9
Forestry.....	172,852	3.6	109,421	1.4	5,298	0.7	4,103	0.5
Fisheries.....	4,316	0.1	4,866	0.1	3,757	0.5	1,190	0.1
Trapping.....	1,329	--	2,445	--	1,496	0.2	1,616	0.2
Mining.....	269,392	5.6	484,407	6.1	25,667	3.5	160,707	18.3
Electric power.....	215,735	4.5	283,470	3.5	32,248	4.3	30,516	3.5
Manufactures.....	2,998,776	62.2	5,332,082	66.7	308,341	41.5	125,877	14.3
Construction.....	877,382	18.2	1,261,562	15.8	195,823	26.3	186,697	21.2
Totals, 1959.....	4,819,283	100.0	7,991,907	100.0	743,946	100.0	879,264	100.0
	Alberta		British Columbia		Yukon and Northwest Territories		Canada	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	356,753	22.9	86,743	4.7	--	--	1,849,997	9.8
Forestry.....	16,671	1.1	231,830	12.7	497	1.5	597,398	3.2
Fisheries.....	1,016	0.1	34,995	1.9	703	2.1	105,534	0.6
Trapping.....	1,197	0.1	422	--	876	2.6	9,707	--
Mining.....	336,649	21.6	81,787	4.5	27,980	83.8	1,497,104	7.9
Electric power.....	45,761	2.9	86,013	4.7	2,707	8.1	748,033	4.0
Manufactures.....	346,300	22.3	848,404	46.4	650	1.9	10,320,963	54.8
Construction.....	451,086	29.0	460,246	25.1	--	--	3,710,129	19.7
Totals, 1959.....	1,555,432	100.0	1,830,441	100.0	33,412	100.0	18,838,865	100.0

For footnotes, see end of table.

13.—Net Value of Production and Percentage Analysis, by Province, 1959 and 1960¹—concluded

Industry	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
1960¹								
Agriculture.....	..	..	19,564	38.8	27,625	6.4	32,914	9.8
Forestry.....	28,172	11.6	653	1.3	15,409	3.6	34,926	10.1
Fisheries.....	15,856	6.5	4,640	9.2	26,094	6.1	9,358	2.7
Trapping.....	80	--	--	--	115	--	104	--
Mining.....	49,119	20.3	96	0.2	45,820	10.6	8,344	2.4
Electric power.....	10,338	4.3	2,079	4.1	23,515	5.5	18,692	5.4
Manufactures.....	64,660	26.6	8,690	17.2	174,808	40.5	158,035	45.6
Construction.....	74,455	30.7	14,764	29.2	117,541	27.3	83,428	24.0
Totals, 1960¹	242,671²	100.0	50,486	100.0	430,925	100.0	346,801	100.0
	Quebec		Ontario		Manitoba		Saskatchewan	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	280,837	5.7	532,665	6.7	170,625	22.8	507,375	49.6
Forestry.....	171,185	3.5	132,185	1.7	5,730	0.8	4,403	0.4
Fisheries.....	4,504	0.1	4,983	0.1	3,867	0.5	1,367	0.1
Trapping.....	1,635	--	2,831	--	1,666	0.2	2,056	0.2
Mining.....	246,082	5.0	452,002	5.7	24,468	3.2	164,568	16.1
Electric power.....	229,008	4.6	302,105	3.8	33,997	4.6	32,333	3.2
Manufactures.....	3,172,770	64.0	5,303,808	66.6	309,435	41.0	119,777	11.7
Construction.....	849,190	17.1	1,229,284	15.4	200,021	26.8	191,472	18.7
Totals, 1960¹	4,953,211	100.0	7,959,862	100.0	746,808	100.0	1,023,362	100.0
	Alberta		British Columbia		Yukon and Northwest Territories		Canada	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	340,792	21.8	87,704	4.7	..	--	2,001,101	10.4
Forestry.....	20,780	1.3	273,202	14.7	1,026	2.8	687,671	3.6
Fisheries.....	1,159	0.1	27,962	1.5	702	2.0	100,491	0.5
Trapping.....	2,070	0.1	812	0.1	980	2.7	12,360	0.1
Mining.....	353,402	22.6	97,381	5.2	29,125	80.2	1,470,407	7.7
Electric power.....	48,587	3.1	91,976	4.9	3,172	8.7	795,802	4.1
Manufactures.....	353,198	22.6	853,836	45.9	1,326	3.6	10,517,333	54.7
Construction.....	445,551	28.4	428,927	23.0	--	--	3,634,633	18.9
Totals, 1960¹	1,565,538	100.0	1,861,800	100.0	36,331	100.0	19,219,798	100.0

¹ Figures for 1960 are not exactly comparable with those for 1959; see text on p. 1070.² Excludes agriculture.

* Included with British Columbia.

Section 3.—Canadian Balance of International Payments*

In late June 1962, the Prime Minister announced that a comprehensive program had become necessary to relieve the pressure on the Canadian dollar in the exchange field; to bring about a greater stability in Canada's international transactions and to strengthen the exchange reserves. The deficit in the current account, although it had been reduced, remained a continuing problem. Canada had become accustomed to large capital inflows from abroad and the immediate difficulties had been precipitated by the drying-up of the net capital inflow and, more recently, a net capital outflow. The excess of imports of goods and services over exports had been paid for out of reserves of gold and United States dollars.

The measures introduced by the Government included temporary, graduated surcharges ranging between 5 p.c. and 15 p.c. on approximately one-half of all imports. Imports which were exempted from any surcharge include many basic foodstuffs, raw materials, industrial components and agricultural machinery, which enter directly into the cost of

* More detailed information is given in DBS annual report *Canadian Balance of International Payments and International Investment Position* (Catalogue No. 67-201) and in *Quarterly Estimates of the Canadian Balance of International Payments* (Catalogue No. 67-001).

Canadian production or the cost of living of the average Canadian, or which are highly essential for other reasons. The lowest surcharge applied to a large volume of imports of a less essential nature, for some of which a surplus capacity existed in Canada and for others of which alternative Canadian products were available. A 10-p.c. surcharge applied to imports for most of which it was possible for consumers to defer purchases or for which Canadian production was available, while the heaviest surcharge was imposed on a group of imports including luxury items. The second measure, also temporary, involved a reduction in the amount of goods which Canadians travelling abroad are permitted to bring duty-free into Canada. These two measures were expected to lead to a significant improvement in the Canadian international account.

The third course of action involved reductions in Government expenditures amounting to \$250,000,000, which, when combined with the import surcharges, were expected to narrow the budgetary deficit by about \$450,000,000 in a full year. As a further financial measure, the Minister of Finance would earmark, for financing increases in the exchange reserves, Canadian dollar cash balances equivalent to the sales of exchange from the reserves.

The Prime Minister stated that at the time of the introduction of these measures Canada's official holdings of gold and U.S. dollars stood at approximately \$1,100,000,000. At the beginning of 1962 they had been \$2,056,000,000. To reinforce these reserves, Canada had arranged for international financial support for well over \$1,000,000,000 in cash and stand-by credits from the International Monetary Fund, the Federal Reserve System of the United States and Britain, and the Export-Import Bank in Washington. After drawing \$650,000,000 of these resources, Canada's official holdings of gold and foreign exchange at the mid-year were \$1,809,000,000.

The measures reflected the determination of the Government to defend the foreign exchange value of the Canadian dollar established in May at 92½ cents United States funds. (See also Section 4, Part I of Chapter XXIII on Currency and Banking.)

The changes in Canada's total commercial and financial transactions with other countries which contributed to the necessity for these measures are presented in summary form in statements of the Canadian balance of international payments. The current account statement, covering all current exchanges of goods and services, indicates the main categories of transactions giving rise to receipts from and expenditures abroad, and the extent to which these are out of balance. The capital account presents an analysis of the movements of short-term and long-term capital that have occurred during a comparable period.

During the first quarter of 1962 Canada's purchases of goods and services from other countries exceeded Canada's sales by \$363,000,000. Net movements of capital into Canada in long-term forms fell sharply from a quarterly average of over \$150,000,000 in 1961 to \$8,000,000, and capital movements in short-term forms, apart from changes in Canada's official holdings of gold and foreign exchange, led to a net capital outflow of \$9,000,000. The official holdings of gold and foreign exchange had, therefore, to bear the full brunt of the deficit on current account of \$363,000,000. In the second quarter the current account deficit together with net capital outflows led to an even sharper decline in Canada's official holdings of gold and foreign exchange, apart from the additional resources obtained under the emergency arrangements.

Each year since 1950, with the exception of 1952, Canada's current expenditures abroad exceeded external current receipts. The current account deficits that resulted in this period of rapid Canadian development were financed by inflows of capital. Current account deficits have customarily been associated with periods of Canadian prosperity. For example, the rate of Canadian growth of the 1950's, based on the development of new resources, provided the underlying element in the strength of Canadian demands for imported goods and services. High levels of investment at a time when defence expenditures were also very heavy, together with rising levels of consumption, contributed to the deficits. Until 1956 the deficits were not large in proportion to the high levels of total current transactions and capital inflows of a long-term type were large enough to finance the deficits in most years. In 1956 and 1957, as the result of continuing high levels of

investment and consumption, the deficits rose to peaks of \$1,366,000,000 and \$1,455,000,000; at the same time, inflows of capital in long-term forms rose very sharply. The figure for 1958, reflecting some moderation of economic activity in Canada, was substantially smaller but nevertheless amounted to \$1,131,000,000. After reaching a record high level of \$1,504,000,000 in 1959, the deficit receded sharply to \$1,243,000,000 in 1960 and to \$982,000,000 in 1961. Since 1956, capital inflows in long-term forms have progressively fallen short of current account deficits.

Current Account Transactions.—The deficit of \$982,000,000 on current account in 1961 was made up of a surplus of \$173,000,000 (first since 1954) on merchandise account* and \$1,155,000,000 from non-merchandise transactions. The merchandise deficit has varied widely and was as high as \$728,000,000 in 1956, when it accounted for more than one-half of the total deficit. On the other hand, the deficit on non-merchandise transactions has risen since 1952 with a persistence and significance characteristic of this type of transaction.

Since 1954, when merchandise exports and imports were almost equal at \$3,900,000,000, exports have risen to a peak of \$5,889,000,000 in 1961 but imports have registered wide fluctuations. In current dollars, the record high import total of \$5,716,000,000 for 1961 was only about 2.5 p.c. higher than imports for 1956 and 1959, but 13 p.c. above 1958. In the past decade or so, the relative importance of exports of metal and mineral materials increased markedly, those of other materials for industry such as chemicals and fertilizers more moderately, while the percentage share for forest products tended to narrow somewhat. The relative position of wheat, flour and other grains, which had been diminishing, recovered in 1961, owing to large shipments of grain to Mainland China and other Communist countries, to the average level of 1955 and 1956. In addition to newer products for export, such as iron ore, uranium, petroleum and natural gas, there have been general increases in more traditional staples like pulp and paper, nickel, aluminum and copper. Over four-fifths of the 9-p.c. export rise in 1961 was derived from larger shipments of wheat, nickel, petroleum and natural gas, with wheat alone accounting for about one-half of the increase. On the other hand, exports of uranium declined sharply and those of other metals less substantially. A 3-p.c. rise in imports in 1961 resulted from larger deliveries of civil aircraft, machinery, fruits, grains, meats and oils, which were offset in part by lower purchases of cars, trucks and rolling-mill products. (See also Part I of Chapter XX on Foreign Trade.)

The 1961 deficit on non-merchandise transactions of \$1,155,000,000 was nearly ten times as great as that in 1949 and two and one-half times that for as recent a year as 1955. This rise was attributable largely to the continued rapid growth in Canada's indebtedness to other countries and to the high level of incomes spent by an enlarged population. Roughly one-half of this deficit in 1961 was directly related to Canada's indebtedness abroad and subject to the effects of continued growth, with total interest and dividend payments by Canadians to other countries reaching \$770,000,000. Other forms of transfer of investment income added over \$100,000,000 of related payments, and there were also large payments by Canadian subsidiaries to parent companies for services. The net payments of interest and dividends alone totalled \$561,000,000 while the net payments on account of all the above groups of transactions that are related to foreign investment amounted to well over \$700,000,000. In addition, there were some hundreds of millions of dollars accruing to non-residents which were retained in Canada for further investment and are therefore not reflected in the current account.

The travel account involves substantial net outlays and reflects high levels of income in Canada. In 1961 net payments amounted to \$160,000,000, a substantial improvement from the deficit of \$207,000,000 in each of the two preceding years, as a result of a heavy influx of tourists from the United States during the summer of that year. To these payments were added net deficits of \$82,000,000 from freight and shipping transactions.

* The adjustments from commodity trade statistics to merchandise imports and exports for balance of payments purposes include some items covered elsewhere in the balance of payments, as well as other adjustments necessary to conform to international receipts and payments.

\$71,000,000 from inheritances and transfers by migrants, and very large net payments of \$443,000,000 covering business services, miscellaneous income, government transactions, and personal remittances. Against these expenditures there was \$162,000,000 available from new gold production.

The bilateral distribution of the improvement in the current account deficit in 1961 was similar to that of 1960, but the increase in the surplus with the overseas countries was not as great as in 1960 and the widening of the deficit with the United States was appreciably reduced. The establishment of the surplus with the overseas countries at \$404,000,000 in 1961, following a smaller one in 1960 of \$118,000,000 and a deficit of \$274,000,000 in 1959, again reflects the traditional pattern of Canada's chronic current deficit with the United States being offset in part at least by a surplus with overseas countries. Over nine-tenths of the addition to the overseas surplus in 1961 arose from merchandise trade with countries outside Western Europe and outside the Sterling Area. The current account surplus with Britain increased \$16,000,000 to \$182,000,000 in 1961. The current deficit with the United States of \$1,386,000,000 was higher than for any year except 1956 and 1957.

Capital Movements.—In 1961, Canada again drew substantially on the resources, real and financial, of the rest of the world. The inflow of capital for direct investment in foreign-controlled establishments during the year was placed at \$420,000,000, roughly two-thirds of the highest figure recorded in the previous year and identical with the 1958 inflow. Transactions in Canadian securities led to a further inflow of \$303,000,000, up about one-quarter over 1960 but down sharply from the \$650,000,000 recorded in 1959. These two groups of transactions added \$723,000,000 to Canadian external liabilities in long-term forms. On the long-term assets side, there were outflows of \$110,000,000 for direct investment abroad and \$30,000,000 for the acquisition of foreign stocks and bonds, but inflows of \$38,000,000 from repayments on inter-governmental loans. Transactions in all long-term forms led to a net capital import of about \$604,000,000 which was sufficient to finance about 62 p.c. of the current account deficit; the corresponding inflows of \$873,000,000 in 1960 were equivalent to 70 p.c. of the larger deficit in that year. Including outflows taking the form of a sizable increase in official holdings of gold and foreign exchange, and reductions in holdings of Canadian dollars by non-residents, all other capital movements in short-term forms led to a net capital inflow of \$378,000,000 in 1961. In that year the net capital inflow in long-term forms from the United States exceeded that from all countries as there were outflows on balance to other countries; in 1960 the net inward movement of capital in long-term forms was about 78 p.c. from the United States.

Inflows in 1961 of \$420,000,000 of capital for direct investment in foreign-controlled enterprises, while substantially below the peak figure of \$645,000,000 in 1960, were only slightly lower than their average level for the period since 1950. During this period, these direct investment inflows have been a specially significant element in the capital account of the Canadian balance of payments. Persistent and substantial, these receipts were directed particularly to resource development and associated industries, and by far the largest part of the new capital went into the petroleum and natural gas industry, which was one of the dynamic developments in the Canadian economy in this period. Substantial amounts also went into other mining industries, particularly for the development of iron ore, and to various branches of manufacturing.

From 1956 to 1959, the inflow for direct investment, large though it was, was less than the inflow of portfolio capital. This arose in part from substantial sales of outstanding Canadian stocks as non-resident investors added to their stake in Canadian growth. The largest factor, however, was the sharply increased demands on the Canadian capital market, some of which were diverted to foreign capital markets through the sale to non-residents of new issues of Canadian bonds and debentures. Corporations, provincial governments and municipalities were all important borrowers abroad in this period.

For some years now there has been a tendency for an increasing proportion of large deficits on current account to be financed by capital movements in short-term forms, amounting in 1961 to nearly 40 p.c. During the first half of 1962 movements of capital in both long-term and short-term forms were on balance outwards, apart from changes in Canada's official holdings of gold and foreign exchange and from official international financial aid extended to Canada. Comments and statistics on the effects of the unprecedented capital inflows of recent years upon the ownership of investments in Canada will be found in Section 4 on Canada's International Investment Position.

14.—Current Account Transactions between Canada and All Countries, 1942-61

(Millions of dollars)

Year	Current Receipts ¹	Current Payments ²	Net Balance including Mutual Aid Exports	Wartime Grants and Mutual Aid	Net Balance on Current Account indicating Net Movement of Capital
1942.....	3,376	2,275	+1,101	-1,002	+99
1943.....	4,064	2,858	+1,206	-518	+688
1944.....	4,557	3,539	+1,018	-960	+58
1945.....	4,456	2,910	+1,546	-858	+688
1946.....	3,365	2,905	+460	-97	+363
1947.....	3,748	3,699	+49	—	+49
1948.....	4,147	3,696	+451	—	+451
1949.....	4,089	3,912	+177	—	+177
1950.....	4,297	4,574	-277	-57	-334
1951.....	5,311	5,683	-372	-145	-517
1952.....	5,858	5,494	+364	-200	+164
1953.....	5,737	5,934	-197	-246	-443
1954.....	5,520	5,668	-148	-284	-432
1955.....	6,072	6,548	-476	-222	-698
1956.....	6,621	7,830	-1,209	-157	-1,366
1957.....	6,622	7,970	-1,348	-107	-1,455
1958.....	6,579	7,568	-989	-142	-1,131
1959.....	6,855	8,296	-1,441	-63	-1,504
1960.....	7,153	8,353	-1,200	-43	-1,243
1961 ^p	7,760	8,707	-947	-35	-982

¹ Includes Mutual Aid exports.

² Excludes Mutual Aid offsets.

15.—Geographical Distribution of the Balance on Current Account between Canada and Other Countries, 1942-61

NOTE.—In the years 1942-46 balances include exports of currently produced goods provided as Mutual Aid or Official Contributions. (See also Table 1.)

(Millions of dollars)

Year	United States ¹	Britain	Other Overseas Countries	All Countries	Year	United States ¹	Britain	Other Overseas Countries	All Countries
1942.....	-180	+1,223	+58	+1,101	1952.....	-849	+388	+625	+164
1943.....	-19	+1,149	+76	+1,206	1953.....	-904	+133	+328	-443
1944.....	+31	+746	+241	+1,018	1954.....	-807	+229	+146	-432
1945.....	+36	+747	+763	+1,546	1955.....	-1,035	+330	+7	-698
1946.....	-607	+500	+567	+460	1956.....	-1,639	+252	+21	-1,366
1947.....	-1,134	+633	+550	+49	1957.....	-1,579	+118	+6	-1,455
1948.....	-393	+486	+358	+451	1958.....	-1,176	+104	-59	-1,131
1949.....	-604	+446	+332	+177	1959.....	-1,230	+13	-287	-1,504
1950.....	-400	+24	+42	-334	1960.....	-1,361	+166	-48	-1,243
1951.....	-951	+223	+211	-517	1961 ^p	-1,386	+182	+222	-982

¹ Includes all net exports of non-monetary gold.

1078 BALANCE OF INTERNATIONAL PAYMENTS AND INVESTMENTS

16.—Balance of International Payments between Canada and All Countries, 1955-61

(Millions of dollars)

Item	1955	1956	1957	1958	1959	1960	1961
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	4,332	4,837	4,894	4,887	5,150	5,392	5,889
Mutual Aid to NATO countries.....	222	157	107	142	63	43	35
Gold production available for export.....	155	150	147	160	148	162	162
Tourist and travel expenditure.....	328	327	363	349	391	420	473
Interest and dividends.....	160	142	151	168	182	173	209
Freight and shipping.....	398	457	445	401	420	442	486
All other current credits.....	477	511	512	472	501	521	506
TOTALS, CURRENT RECEIPTS.....	6,072	6,621	6,622	6,579	6,855	7,153	7,760
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	4,543	5,565	5,488	5,066	5,572	5,540	5,716
Tourist and travel expenditure.....	449	498	525	542	598	627	633
Interest and dividends.....	483	523	589	612	671	653	770
Freight and shipping.....	415	502	515	460	525	533	568
Official contributions ¹	246	187	147	195	135	104	91
All other current debits.....	634	712	813	835	858	939	964
TOTALS, CURRENT PAYMENTS.....	6,770	7,987	8,077	7,710	8,359	8,396	8,742
Balance on merchandise trade.....	-211	-728	-594	-179	-422	-148	+173
Balance on other transactions.....	-487	-638	-861	-952	-1,082	-1,095	-1,155
C. CURRENT ACCOUNT BALANCE.....	-698	-1,366	-1,455	-1,131	-1,504	-1,243	-982
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada.....	+417	+583	+514	+420	+550	+645	+420
Direct investment abroad.....	-74	-104	-68	-48	-80	-85	-110
Canadian Securities—							
Trade in outstanding issues.....	-27	+199	+92	+88	+201	+52	+103
New issues.....	+166	+667	+798	+677	+707	+447	+492
Retirements.....	-184	-141	-133	-158	-258	-253	-292
Foreign security transactions.....	-6	+2	+6	+3	-33	-20	-30
Repayments on Government of Canada war and postwar loans.....	+69	+69	+50	+30	+33	+32	+38
Subscriptions in gold and U.S. dollars to IBRD, IFC and IMF.....	—	-4	—	—	-59	-3	—
Change in Canadian dollar holdings of foreigners.....	+89	-24	-35	+106	+13	+120	-34
Change in official holdings of gold and foreign exchange (increase, minus).....	+44	-33	+105	-109	+70	+39	-229
Other capital movements ²	+204	+152	+126	+122	+360	+269	+624
E. NET CAPITAL MOVEMENT.....	+698	+1,366	+1,455	+1,131	+1,504	+1,243	+982

¹ Includes Mutual Aid to NATO countries. omissions.

² Includes unrecorded capital movements, and errors and

17.—Current and Capital Account Transactions between Canada and the United States, 1955-61

(Millions of dollars)

Item	1955	1956	1957	1958	1959	1960	1961
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	2,598	2,854	2,931	2,908	3,191	3,040	3,213
Net exports of non-monetary gold.....	155	150	147	160	148	162	162
Travel expenditure.....	303	309	325	309	351	375	429
Interest and dividends.....	78	80	95	100	99	102	109
Freight and shipping.....	203	223	222	206	228	220	230
All other current receipts.....	363	290	350	327	363	380	361
TOTALS, CURRENT RECEIPTS.....	3,700	4,015	4,070	4,010	4,350	4,279	4,504

17.—Current and Capital Account Transactions between Canada and the United States, 1955-61—concluded

Item	1955	1956	1957	1958	1959	1960	1961
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	3,283	4,021	3,878	3,443	3,727	3,713	3,828
Travel expenditure.....	363	391	403	413	448	462	453
Interest and dividends.....	388	427	480	500	547	551	642
Freight and shipping.....	287	351	351	294	326	324	333
All other current payments.....	414	464	537	536	562	610	634
TOTALS, CURRENT PAYMENTS.....	4,735	5,654	5,649	5,186	5,610	5,640	5,890
C. CURRENT ACCOUNT BALANCE.....	-1,035	-1,639	-1,579	-1,176	-1,230	-1,361	-1,386
D. CAPITAL ACCOUNT—							
Direct Investment—							
Direct investment in Canada.....	+306	+406	+390	+303	+424	+437	..
Direct investment abroad.....	-56	-70	-35	-3	-7	-48	..
Canadian Securities—							
Trade in outstanding issues.....	-67	+34	-65	+60	+94	+45	..
New issues.....	+127	+601	+722	+600	+622	+381	..
Retirements.....	-169	-133	-105	-132	-211	-200	..
Foreign security transactions.....	+25	-3	+9	+2	-36	+3	..
Subscriptions in gold and U.S. dollars to IBRD, IFC and IMF.....	—	—	—	—	-59	-3	..
Change in Canadian dollar holdings of foreigners.....	+66	-48	-10	+83	+8	+60	..
Change in official holdings of gold and foreign exchange (increase, minus).....	+42	-34	+104	-108	+67	+39	..
Other capital movements ¹	+151	+103	+58	+147	+447	+291	..
E. NET CAPITAL MOVEMENT.....	+425	+856	+1,068	+952	+1,349	+1,005	..
F. BALANCE SETTLED BY EXCHANGE TRANSFERS.....	+610	+783	+511	+224	-119	+356	..
TOTALS, FINANCING OF CURRENT ACCOUNT BALANCE.....	+1,035	+1,639	+1,579	+1,176	+1,230	+1,361	+1,386

¹ Includes unrecorded capital movements, and errors and omissions.

18.—Current Account Transactions between Canada and Britain, 1955-61

(Millions of dollars)

Item	1955	1956	1957	1958	1959	1960	1961
A. CURRENT RECEIPTS—							
Merchandise exports (adjusted).....	772	818	734	766	731	924	924
Travel expenditure.....	13	14	13	18	18	20	19
Interest and dividends.....	41	14	10	32	35	32	34
Freight and shipping.....	97	98	65	84	80	93	100
All other current receipts.....	59	71	81	60	69	76	74
TOTALS, CURRENT RECEIPTS.....	982	1,015	938	960	933	1,145	1,151
B. CURRENT PAYMENTS—							
Merchandise imports (adjusted).....	406	493	520	537	618	611	593
Travel expenditure.....	40	46	47	52	62	70	74
Interest and dividends.....	75	73	78	76	90	83	86
Freight and shipping.....	49	59	69	70	85	89	93
All other current payments.....	82	92	106	121	115	126	123
TOTALS, CURRENT PAYMENTS.....	652	763	820	856	970	979	969
C. CURRENT ACCOUNT BALANCE.....	+330	+252	+118	+104	+13	+166	+182

Section 4.—Canada's International Investment Position*

The international financial difficulties which beset Canada in mid-1962 were the immediate result of a sharp reduction in the net inflow of foreign capital coupled with an increased movement abroad of private Canadian capital. The cessation of net private

* A more extended historical review appears in DBS report *Canada's International Investment Position, 1926 to 1954* (Catalogue No. 67-593), and more recent statistics in the annual report *The Canadian Balance of International Payments and International Investment Position* (Catalogue No. 67-201).

capital inflows occurred in the face of the continuation of a substantial deficit on current account, largely determined by the apparently intractable deficit on account of "invisibles". To a considerable extent these out-payments were a manifestation of the size and character of Canada's balance of international indebtedness, a phrase used in the broad sense generally accepted in balance of payments terminology to include equity investments as well as contractual borrowings. This was true not only through the servicing of capital involving interest, dividends and miscellaneous income payments, but also through the influences of foreign investment on the Canadian economy and on the shape and direction of its external demands.

For a number of years Canada was by far the world's largest importer of private long-term capital, and the very substantial capital formation which was a feature particularly of the 1950's was associated with an unprecedented growth in the country's external liabilities. These investments contributed to a rapid rate of growth in the Canadian economy, particularly in the exploitation of natural resources, and added significantly to Canadian production, employment and income. At the same time they added substantially to the continuing burden of Canada's external debt and to the proportion of Canadian industry controlled by non-residents.

Canada's gross external liabilities amounted to \$26,100,000,000 at the end of 1960; non-resident-owned long-term investments in Canada had reached a book value of \$22,200,000,000, having tripled since the end of World War II (by the end of 1961 they totalled well over \$23,000,000,000). The part of these investments in establishments controlled outside of Canada totalled \$12,900,000,000. These direct investments have been growing more rapidly than the total. Investments in other Canadian equities, although smaller, have also been substantial and there have been periods in recent years of sharp increase in foreign holdings of Canadian bonds and debentures.

Investments of non-resident capital have been closely related to the high rate of growth in Canada and to the heavy demands placed on capital markets by this factor and by the financial needs of governments and municipalities. Large development projects have been initiated and financed by investors from other countries and the growth effects from this investment have, in turn, led to Canadian borrowing in capital markets outside of Canada. While capital inflows have been the principal source of the increased indebtedness abroad, another substantial contributor has been the earnings from non-resident-controlled branches and subsidiaries which were retained in Canada. New resource industries depending to a large extent on non-resident financing include all branches of the petroleum industry, iron ore and other mining, aluminum, nickel, pulp and paper, and chemical industries. In addition, secondary industry has also benefited from non-resident investment.

Canada's gross external assets totalled \$9,200,000,000 at the end of 1960 and government-owned assets made up a substantial part of that total. Canada's net balance of international indebtedness, including equity investments, at the same date was estimated at \$16,900,000,000, well over half of which was incurred in the five years since 1955 and more than two-thirds in the eight years since 1952. By the end of 1961 Canada's net balance of international indebtedness had risen to around \$18,000,000,000.

Foreign Investments in Canada.—Dependence upon external sources of capital for financing in earlier periods of heavy investment activity has been characteristic of Canadian development. During the exceptional growth period that occurred before World War I the rate of increase in non-resident investment was very high and dependency upon external sources of capital was greater than in later periods. Total non-resident investments in Canada increased from an estimated \$1,232,000,000 in 1900 to \$3,837,000,000 by 1914, mainly in the form of bonded debt for railway and other expansion guaranteed by the Canadian Government. This was the period when the principal external source of capital was London, and by 1914 British investments in Canada, estimated at

\$2,778,000,000, were at about their highest level. By the same date, United States investments, although they had been increasing rapidly, had only about one-third of the value of British-owned investments.

During the first part of the inter-war period the United States became the principal source of external capital, and by 1926 the United States-owned portion of Canada's international debt exceeded that owned in Britain which had not increased since 1914. Growth in United States investments in Canada continued for some years but was interrupted in the 1930's when the total was reduced by repatriations of securities and other withdrawals of capital. Increases began again in the 1940's, and by the end of World War II United States investments of \$4,990,000,000 compared with British investments of \$1,750,000,000. The latter had been reduced by wartime repatriation measures and the proceeds were used in financing British expenditures in Canada. Following the War, up to 1948, some further declines occurred in British investments in Canada but since then they have increased.

United States investments have risen each year since the end of World War II, particularly since 1947 when the period of intense activity in the petroleum industry got under way following new discoveries. More than half the growth in United States investment in Canada has occurred since 1952. At \$16,718,900,000, United States investments in 1960 continued to represent more than three-quarters of all non-resident investments in Canada and also made up a similar ratio of the increase since 1952. The main rise occurred in direct investments in companies controlled in the United States, which are prominent in many branches of Canadian industry. By 1960 these had increased to well over twice their value in 1952. In the same period portfolio investments in Canada owned in the United States rose by more than two-thirds. A considerable part of this latter rise occurred in the period 1956-59 when large sales of new issues of securities were made in that country.

British investments in Canada totalled \$3,359,000,000 at the end of 1960. Although these investments then exceeded by some hundreds of millions of dollars the levels reached at the end of World War I and again in the early 1930's, they accounted for only about 15 p.c. of the total non-resident investments in Canada compared with 36 p.c. at the end of 1939 before most of the wartime repatriations. British investments in Canada had more than doubled from the low point in 1948; the increase had been particularly concentrated in direct investments which had more than tripled and which, at the end of 1960, represented a much larger portion of the total than in the prewar period. In absolute terms, this rise in total British investments in Canada is slightly below the rise in investments by all other overseas countries in the same period, although the rate of increase has been lower.

Investments of countries other than the United States and Britain reached a record total of \$2,123,000,000 at the end of 1960. Exceeding four times the corresponding 1952 figure, this represented a much higher rate of increase than had occurred in either United States or British investments and large increases had taken place in portfolio holdings of securities as well as in direct investments. At more than 9 p.c. of the total, this group of countries, mostly in Western Europe, made up a larger portion of total investments than ever before. Over 90 p.c. of the direct investments, which totalled \$788,000,000 in 1960, also came from Western Europe; more than one-quarter was of Belgian origin with Dutch, French, Swiss and German investments making up the next largest groups.

The degree of dependence upon non-resident capital for financing Canadian investment has been relatively much less in the postwar period than in the earlier periods of exceptional expansion, even though the rise in non-resident investments has been so great. Thus, from 1950 to 1955 the net use of foreign resources amounted to about one-fifth of net capital formation in Canada, and direct foreign financing amounted to about one-third. But from 1956 to 1960 when these ratios had increased considerably to 33 p.c. and 45 p.c., respectively, they were still less than the corresponding ratios in the period 1929 to 1930 when inter-war investment activity was at its highest point. In that shorter period more

than one-half of net capital formation was financed from outside of Canada, and in the period of heavy investment before World War I an even larger ratio of investment was financed by external capital. In considering these changes it should be noted that for a decade and a half, between 1934 and 1949, Canada was a net exporter of capital and that Canadian assets abroad have been rising over a long period.

It should also be noted that the above ratios relate to the place of non-resident investments in all spheres of development including those where Canadian sources of financing predominate such as in merchandising, agriculture, housing, public utilities, and other forms of social capital. Thus non-resident financing of manufacturing, petroleum and mining has been much higher than the over-all ratios indicate, and has provided the major portion of the capital investment in this field in the period since 1948. The most recent comprehensive calculation of the ratios of non-resident ownership in Canadian manufacturing, mining and petroleum is for the year 1959 and it should be noted that subsequent changes may have increased non-resident ownership even more. In that year the Canadian manufacturing industry was 51 p.c. owned by non-residents but capital subject to foreign control was 57 p.c. These proportions compared with 47 p.c. and 51 p.c., respectively, as recently as the end of 1954. In the field of petroleum and natural gas, non-resident ownership and control amounted to 63 p.c. and 75 p.c., respectively, at the end of 1959 whereas at the end of 1954 non-resident ownership and control had amounted to 60 p.c. and 69 p.c., respectively; in mining and smelting, non-resident ownership and control amounted to 59 p.c. and 61 p.c., respectively, compared with 53 p.c. and 51 p.c. in 1954. However, resident-owned Canadian capital continued to play a leading role in the financing of such areas of business as merchandising, railways and other public utilities. Hence non-resident ownership of business as a whole, including manufacturing, petroleum, mining, merchandising and railways and utilities, rose only slightly from 32 p.c. in 1948 to 34 p.c. in 1959 (the last year for which the calculation has been made). But, in the same years, companies subject to non-resident control increased from 25 p.c. to 32 p.c. their share of the total even in this broad area of business, a trend also evident in many subdivisions of the manufacturing and extractive industries.

The petroleum and natural gas industry, including exploration and development, refining, merchandising, pipelines and other distribution facilities, has been the largest single recipient of capital inflows in the postwar period, accounting directly for far more than 40 p.c. of the inflow of United States capital for direct investment in Canada. By the end of 1959, investments in Canadian petroleum concerns controlled in the United States made up 69 p.c. of the total. Another 6 p.c. of the investment was controlled in overseas countries. Investments owned in the United States and overseas were 57 p.c. and 6 p.c., respectively, of the total.

Another basis of judging the place of foreign-controlled business in Canadian industry is provided by a special study of production and employment in the larger Canadian manufacturing establishments controlled in the United States. Such establishments having an investment of \$1,000,000 or more accounted for about 30 p.c. of Canadian manufacturing production in 1953 and 21 p.c. of employment in that field. These ratios in non-resident-controlled plants were considerably higher than in 1946—the previous year for which a study of this kind was made.

In some industries the proportions of production and employment in plants controlled in the United States were much higher than this. Automobiles, for example, are mainly produced in United States-controlled plants, but this is exceptional. Among other industries where well over one-half of the production is in United States-controlled firms are the smelting and refining of non-ferrous metals, petroleum refining, rubber products, and motor-vehicle parts. In several major industries like electrical apparatus and supplies and non-ferrous metal products the distribution of control between Canadian and United States-controlled companies is more evenly divided. In other industries the non-resident share is large although less than one-half the total. These include pulp and paper, other paper products, chemicals, medicinal and pharmaceutical products, sheet-metal products, and certain branches of the machinery industry.

There are, however, many industries where the largest part of production has been in Canadian-controlled plants. Prominent among these are such important branches of industry as primary iron and steel, and some other subdivisions of the iron and steel industry, textiles, clothing, and divisions of the foods and beverages industry, such as bakery products, beverages and dairy products. But even in some of these industries changes in ownership and control have been occurring in recent years.

19. Estimate of the Canadian Balance of International Indebtedness, as at Dec. 31, 1939-60

NOTE.—Totals are rounded and may not represent the sum of their components.

(Billions of dollars)

Item	1939	1945	1940	1955	1957	1958	1959	1960 ^p
Canadian Liabilities—								
Direct investments.....	2.3	2.7	3.6	7.7	10.1	10.9	11.9	12.9
Government and municipal bonds.....	1.7	1.7	1.8	1.9	2.3	2.6	3.1	3.3
Other portfolio investments.....	2.6	2.4	2.3	3.2	4.1	4.4	4.6 ^r	4.6
Miscellaneous investments.....	0.3	0.3	0.3	0.6 ^r	0.9	1.1	1.3	1.4
Totals, Non-resident Long-Term Investment in Canada.....	6.9	7.1	8.0	13.5	17.5	19.0	20.8	22.2
Equity of non-residents in Canadian assets abroad.....	0.2	0.2	0.3	0.7	0.8	0.9	1.0	1.1
Canadian dollar holdings of non-residents.....	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6
Canadian short-term assets of international financial agencies.....	—	—	0.3	0.2	0.2	0.2	0.4	0.4
Gross Liabilities¹.....	7.4	7.6	8.9	14.8	18.9	20.6	22.7	24.3
United States ¹	4.5	5.4	6.4	11.1	14.2	15.5	16.9	18.2
Britain ¹	2.6	1.8	1.8	2.5	3.1	3.3	3.4	3.5
Other countries ^{1, 2}	0.3	0.4	0.7	1.2	1.7	1.9	2.4	2.7
Short-term commercial payables ³.....	..	0.4	0.4	0.5	1.0	1.2	1.6	1.7
Gross Liabilities.....	..	8.0	9.3	15.3	19.9	21.8	24.3	26.1
Canadian Assets—								
Direct investments.....	0.7	0.7	0.9	1.7	2.1	2.1 ^r	2.3	2.5
Portfolio investments.....	0.7	0.6	0.6	1.0	1.1	1.1	1.1	1.3
Government of Canada loans and advances.....	—	0.7	2.0	1.6	1.5	1.5	1.5	1.4
Government of Canada subscriptions to international financial agencies.....	—	—	0.4	0.4	0.4	0.4	0.6	0.6
Totals, Canadian Long-Term Investments Abroad.....	1.4	2.0	4.0	4.7	5.0	5.1	5.5	5.7
Government of Canada holdings of gold and foreign exchange.....	0.5	1.7	1.2	1.9	1.8	1.9	1.8	1.8
Bank balances and other short-term funds abroad.....	—	0.1	0.1	0.3	0.9	1.0	1.0	1.2
Gross Assets¹.....	1.9	3.8	5.2	7.0	7.7	7.9	8.3	8.8
Government of Canada holdings of gold and foreign exchange.....	0.5	1.7	1.2	1.9	1.8	1.9	1.8	1.8
United States ^{1, 4}	0.9	0.9	1.1	2.2	3.0	3.1	3.3	3.6
Britain ^{1, 4}	0.1	0.7	1.6	1.4	1.4	1.4	1.4	1.5
Other countries ^{1, 2}	0.4	0.5	1.3	1.4	1.5	1.6	1.9	1.9
Short-term commercial receivables ³.....	..	0.1	0.2	0.3	0.4	0.5	0.5	0.4
Gross Assets.....	..	4.0	5.5	7.4	8.1	8.4	8.8	9.2
Canadian Net International Indebtedness—Net Liabilities.....	5.5¹	4.0	3.8	7.9	11.8	13.4	15.5	16.9
Government of Canada holdings of gold and foreign exchange.....	-0.5	-1.7	-1.2	-1.9	-1.8	-1.9	-1.8	-1.8
United States ^{1, 4}	3.6	4.6	5.3	8.8	11.2	12.4	13.7	14.6
Britain ^{1, 4}	2.5	1.1	0.2	1.1	1.7	1.9	2.0	2.0
Other countries ^{1, 2}	-0.1	-0.1	-0.6	-0.2	0.1	0.3	0.6	0.8
Short-term commercial indebtedness ³.....	..	0.3	0.2	0.2	0.6	0.7	1.0	1.3

¹ Excludes short-term commercial indebtedness.

² Includes international financial agencies.

³ Country

distribution not available.

⁴ Excludes Government of Canada holdings of gold and foreign exchange.

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20.—Foreign Capital Invested in Canada, by Type of Investment, as at Dec. 31, 1930-60

(Millions of dollars)

Type of Investment	1930	1945	1951	1955	1956	1957	1958 ¹	1959 ¹	1960
Government Securities—									
Federal.....	682	726	1,013	529	502	501	564	612	611
Provincial.....	592	624	771	883	1,081	1,165	1,276	1,585	1,632
Municipal.....	432	312	319	452	552	660	781	915	1,026
Totals, Government Securities	1,706	1,662	2,103	1,869	2,135	2,326	2,621	3,112	3,269
Public Utilities—									
Railways.....	2,244	1,599	1,436	1,364	1,426	1,396	1,413	1,405	1,406
Other (excluding pipelines and public enterprises).....	634	493	524	574	628	661	712	739	743
Totals, Public Utilities.....	2,878	2,092	1,960	1,938	2,054	2,057	2,125	2,144	2,149
Manufacturing (excluding petroleum refining).....	1,459	1,723	2,715	4,025	4,579	5,051	5,381	5,726	6,115
Petroleum and natural gas.....	150	160	693	1,854	2,275	2,849	3,187	3,455	3,727
Other mining and smelting.....	311	356	586	1,121	1,330	1,570	1,657	1,783	1,977
Merchandising.....	190	220	377	616	683	715	784	878	872
Financial.....	543	525	595	1,231	1,488	1,782	1,938	2,190	2,380
Other enterprises.....	82	70	120	178	207	235	254	284	297
Miscellaneous investments.....	295	284	328	641	818	879	1,063 ¹	1,235	1,414
Totals, Investment.....	7,614	7,092	9,477	13,473	15,569	17,464	19,010	20,857	22,200
United States ²	4,660	4,900	7,259	10,275	11,789	13,264	14,441	15,826	16,718
Britain ²	2,766	1,750	1,778	2,356	2,668	2,917	3,085	3,199	3,359
Other countries.....	188	352	440	842	1,112	1,283	1,481	1,832	2,123

¹ New series.

² Includes some investments held for residents of other countries.

21.—Foreign Capital Invested in Canada by Type of Investment, classified by Estimated Distribution of Ownership, as at Dec. 31, 1960

NOTE.—Common and preferred stocks are at book values as shown in the balance sheets of the issuing companies; bonds and debentures are valued at par; and liabilities in foreign currencies are converted into Canadian dollars at par of exchange.

Type of Investment	Estimated Distribution of Ownership			Total Investments of Non-residents
	United States ¹	Britain ¹	Other Countries	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Government Securities—				
Federal.....	382	48	181	611
Provincial.....	1,544	47	41	1,632
Municipal.....	977	32	17	1,026
Totals, Government Securities.....	2,903	127	239	3,269
Public Utilities—				
Railways.....	479	755	172	1,406
Other (excluding pipelines and public enterprises).....	551	125	67	743
Totals, Public Utilities.....	1,030	880	239	2,149
Manufacturing (excluding petroleum refining).....	4,818	985	312	6,115
Petroleum and natural gas.....	3,184	270	273	3,727
Other mining and smelting.....	1,701	152	124	1,977
Merchandising.....	608	214	50	872
Financial.....	1,587	469	324	2,380
Other enterprises.....	234	51	12	297
Miscellaneous investments.....	653	211	550	1,414
Totals, Investments.....	16,718	3,359	2,123	22,200

¹ Includes some investments held for residents of other countries.

Canadian Assets Abroad.—While there has been a great growth in non-resident investment in Canada and in the balance of indebtedness to other countries, it will be noted that Canadian assets abroad, shown in Tables 22 and 23, have continued to rise in value each year. These now represent a larger proportion of liabilities abroad than was the case before World War II, but more than half of the increase since then has been in government-owned assets such as the official reserves and the loans by the Canadian Government to other governments which were extended during the war and early postwar years. At the end of 1961 the government credits outstanding had a value of \$1,380,000,000 while official holdings of exchange amounted to \$2,154,000,000 in terms of Canadian dollars. Other official Canadian assets include Canada's subscriptions to the capital of the International Bank, the International Development Association, the International Finance Corporation and the International Monetary Fund which, by March 1962, amounted to \$73,700,000,000, \$16,400,000,000, \$3,500,000,000, and \$564,700,000,000, respectively, a substantial part being offset by liabilities to these institutions.

The portion of the assets in private investments, particularly in the form of direct investments abroad by Canadian companies, is still small in relation to the corresponding non-resident stake in equities in Canada. Private long-term investments abroad by Canadians in 1960 were made up of direct investments of \$2,495,000,000 and portfolio investments of \$1,280,000,000. More than two-thirds of the privately owned investments were located in the United States. Direct investments in that country by Canadian businesses have grown rapidly and are found in many fields, among which the beverage and farm implement industries are particularly noteworthy.

Private investments in overseas countries are widely distributed. About one-half of the total in 1960 were located in Commonwealth countries, with slightly less in Britain than in the remainder of the Commonwealth. Most of the direct investments in Britain were in industry, while in other Commonwealth countries there were investments in mining and petroleum as well as in industry. In foreign overseas countries the largest part is in the countries of Latin America where Canadian holdings in public utilities are substantial.

22.—Canadian Assets Abroad, 1939, 1948 and 1955-60

NOTE.—Excludes investments of insurance companies and banks, Canada's subscriptions to international financial institutions and short-term assets, other than official holdings of gold and foreign exchange. Holdings of stocks are at book values as shown in the books of issuing companies; holdings of bonds are shown at par values. Foreign currencies are converted into Canadian dollars at current market rates. The series for portfolio investment was reconstructed in 1952 and is not strictly comparable with preceding years.

(Millions of dollars)

Assets	1939	1948	1955*	1956*	1957*	1958*	1959*	1960*
Direct investments in businesses outside Canada.....	671	788	1,742	1,891	2,073	2,149	2,295	2,495
Portfolio holdings of foreign securities.....	719	605	991	1,008	1,062	1,105	1,165	1,280
Government credits.....	31	1,878	1,635	1,565	1,515	1,484	1,451	1,418
Official balances abroad and gold.....	459	1,006	1,908	1,866	1,807	1,879	1,786	1,830
Totals.....	1,880	4,277	6,276	6,328	6,457	6,617	6,697	7,023

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23.—Canadian Assets Abroad, by Location of Investment, as at Dec. 31, 1960^a

NOTE.—See headnote to Table 22.

Location of Investment	Direct Invest- ments	Portfolio Investment		Govern- ment Credits	Official Holdings of Exchange	Total Invest- ments
		Stocks	Bonds			
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
United States.....	1,624	803	122	—	941	3,490
Britain.....	255	26	16	1,047	7	1,351
Other Commonwealth countries.....	302	8	19	35	—	364
Other foreign countries.....	314	176	110	336	—	936
Official gold holdings.....	—	—	—	—	882	882
Totals.....	2,495	1,013	267	1,418	1,830	7,023

CHAPTER XXIII.—CURRENCY AND BANKING; MISCELLANEOUS COMMERCIAL FINANCE

CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book
will be found facing p. 1 of this volume.*

PART I.—CURRENCY AND BANKING*

Section 1.—The Bank of Canada

The Bank of Canada is Canada's central bank. It was incorporated under the Bank of Canada Act in 1934 and commenced operations on Mar. 11, 1935. The Act of Parliament which established the central bank charged it with the responsibility for regulating "credit and currency in the best interests of the economic life of the nation", and conferred on it certain specific powers for discharging this responsibility. Through the exercise of these powers the Bank of Canada determines broadly the combined total of the basic forms of Canadian money held by the community—currency outside banks plus deposit balances in chartered bank accounts.

By virtue of the provisions of the Bank of Canada Act, which enable the central bank to increase or decrease the total amount of cash reserves available to the chartered banks as a group, the Bank of Canada is able to determine broadly the over-all level of the total assets and deposit liabilities of the group, and hence of the combined total of currency and bank deposits. The Bank Act requires that each chartered bank maintain a minimum amount of cash reserves in the form of deposits at the Bank of Canada and holdings of Bank of Canada notes. This minimum requirement is 8 p.c. of the bank's total Canadian dollar deposit liabilities on a monthly average basis. The ability of the chartered banks as a group to expand their total assets and deposit liabilities therefore depends on the level of total cash reserves. An increase in cash reserves will encourage the banks to expand their total assets (which consist chiefly of loans and marketable securities) with a concomitant increase in deposit liabilities; a decrease in cash reserves will bring about a decline in their total assets and deposit liabilities as they seek to restore their cash reserve ratios.

* Except where otherwise indicated, this material has been revised by the Research Department of the Bank of Canada.

The chief method by which the Bank of Canada can affect the level of cash reserves of the chartered banks, and through them the total of chartered bank deposits, is by purchases and sales of government securities. Payment by the central bank for the securities it purchases in the market adds to the cash reserves of the chartered banks as a group and puts them in a position to expand their assets and deposit liabilities. Conversely, payment to the central bank for securities it sells causes a reduction in reserves of the chartered banks and makes it necessary for them to reduce their assets and deposit liabilities.

The influence that the Bank of Canada has on credit conditions and hence on economic behaviour stems from its ability to determine broadly the level of total holdings of currency and chartered bank deposits. The trend of total holdings of these forms of money can have an influence on liquidity generally, including effects on interest rates and bond prices and the availability of credit, and on expectations regarding future financial and economic trends, all of which have some effect on decisions to spend or to save. However, many factors other than changes in the money supply also have important influences on financial and economic developments, such as: the state of economic conditions and prospects outside Canada; the competitive strength of Canadian business enterprises both at home and abroad; the character of the investment decisions and price and wage policies in domestic industries; the skills and degree of mobility of labour; and the nature of public policies at all levels of government with regard to such matters as expenditure, taxation, subsidies and the regulation of industry.

In forming its judgments in the light of changing circumstances as to whether its operations should be such as to facilitate an increase or induce a decrease in the supply of money or to hold it more or less constant, the Bank of Canada is bound by criteria laid down by Act of Parliament in the preamble to the Bank of Canada Act of 1934. In addition to the broad directive to the Bank "to regulate credit and currency in the best interests of the economic life of the nation", and "generally to promote the economic and financial welfare of the Dominion", it is also prescribed that the Bank should endeavour "to mitigate by its influence fluctuations in the general level of production, trade, prices and employment as far as may be possible within the scope of monetary action". Its operations must be based, not on any simple mechanical formula, but rather on continuous observation and appraisal of the constantly changing state of the economy as reflected in the complex pattern of economic and financial developments.

While the Bank of Canada has the power to determine the combined total of currency and chartered bank deposits, it has no means of determining how much of this total is held in the form of currency and how much in the form of chartered bank deposits. That depends on the wishes of the public, since deposits can be converted freely into notes and coin and back again. Nor does the Bank have any direct control over the growth of other forms of money or of close substitutes for money as a store of wealth in liquid form, of which there are many varieties in Canada—mainly deposit balances in savings institutions other than chartered banks and short-term securities issued by governments and corporations.

The cash reserve system in Canada, which is similar to that in a number of other countries, while placing the central bank in a position where it can determine within broad limits the total amount of chartered bank assets and deposits, leaves the allocation of bank credit and other forms of credit to the private sector of the economy. Each chartered bank can attempt to gain as large a share as possible of the total cash reserves by competing for deposits. Each bank determines how its assets will be distributed, for example, between various kinds of securities and loans to various types of borrowers. The Bank of Canada has no power to direct banks or other lenders to make funds available to certain groups or in certain regions on the same terms or on different terms than to other groups or in other regions. The influence of the central bank—based in essence on its power to expand or contract chartered bank cash reserves through its market purchases or sales of securities—is both indirect and impersonal and is brought to bear on financial conditions generally through the chartered banks and the numerous inter-connected channels of the capital market.

The powers of the Bank are set forth in the Bank of Canada Act, 1934 (RSC 1952, c. 13), revisions in which were made in 1936, 1938 and 1954. Some of these powers are outlined below.

The Bank may buy and sell securities issued or guaranteed by Canada or any province, short-term securities issued by Britain, treasury bills or other obligations of the United States, and certain classes of short-term commercial paper. The Bank is authorized by the Industrial Development Bank Act to purchase bonds and debentures issued by the Industrial Development Bank. The Bank may buy and sell gold, silver, nickel and bronze coin, and gold and silver bullion, and may also deal in foreign exchange. The Bank may accept deposits that do not bear interest from the Government of Canada, the government of any province, any chartered bank or any bank to which the Quebec Savings Bank Act applies. The Bank does not accept deposits from individuals and does not compete with the chartered banks in commercial banking fields.

The Bank acts as the fiscal agent for the Government of Canada in the payment of interest and principal and generally in respect of the management of the public debt of Canada.

The Bank has the sole right to issue paper money for circulation in Canada. Details regarding the note issue are given on p. 1092.

The Bank of Canada may vary the minimum cash reserve requirement of the chartered banks between 8 p.c. and 12 p.c. of their Canadian dollar deposit liabilities, provided that the chartered banks are given a minimum notice period of one month before each increase becomes effective and that any increase is not more than 1 p.c. during any one month. When this legislation became effective on July 1, 1954, the requirement was 8 p.c. and it has since remained at that level. (Prior to July 1, 1954, each chartered bank was required to maintain at all times cash reserves equal to not less than 5 p.c. of its Canadian dollar deposit liabilities; in practice the chartered banks as a group normally worked to a ratio of about 10 p.c.)

The Bank may make loans or advances for periods not exceeding six months to chartered banks, or to banks to which the Quebec Savings Bank Act applies, on the pledge or hypothecation of certain classes of securities. Loans or advances on the pledge or hypothecation of readily marketable securities issued or guaranteed by Canada or any province may be made to the Government of Canada or the government of any province for periods not exceeding six months. Other loans may be made to the Government of Canada or the government of any province in amounts not exceeding a fixed proportion of such government's revenue; such loans must be repaid before the end of the first quarter after the end of the fiscal year of the borrower.

The Bank of Canada is required to make public at all times the minimum rate at which it is prepared to make loans or advances; this rate is known as the Bank Rate. Since Nov. 1, 1956 the Bank Rate has been established weekly at a fixed margin of $\frac{1}{4}$ of 1 p.c. above the latest weekly average tender rate for 91-day treasury bills.

Sect. 23 of the Bank of Canada Act provides that the Bank shall maintain a reserve of gold equal to not less than 25 p.c. of its outstanding notes and deposit liabilities. This requirement was suspended in 1940 when, under the terms of the Exchange Fund Order, the Bank's gold holdings were transferred to the Exchange Fund Account to form part of Canada's official gold and United States dollar reserves. The Currency, Mint and Exchange Fund Act passed in 1952 provides that, notwithstanding Sect. 23 of the Bank of Canada Act, the Bank of Canada is not required to maintain a minimum or fixed ratio of gold or foreign exchange to its liabilities unless the Governor in Council prescribes otherwise.

The Bank is under the management of a Board of Directors composed of a Governor, a Deputy Governor and twelve Directors. The Governor and Deputy Governor are appointed for terms of seven years each by the Directors, with the approval of the Governor General in Council. The Directors are appointed by the Minister of Finance, with the

approval of the Governor General in Council, for terms of three years each. The Deputy Minister of Finance is a member of the Board but does not have the right to vote. There is an Executive Committee of the Board composed of the Governor, the Deputy Governor, one Director and the Deputy Minister of Finance (who is without a vote) which has the same powers as the Board except that its decisions must be submitted to the Board at its next meeting. In addition to the Deputy Governor who is a member of the Board, there may be one or more Deputy Governors appointed by the Board of Directors to perform such duties as are assigned by the Board.

The Governor is the chief executive officer of the Bank and Chairman of the Board of Directors. The Governor has the power to veto any action or decision of the Board of Directors or of the Executive Committee but such veto is subject to confirmation or disallowance by the Governor General in Council. In the absence of the Governor, the Deputy Governor, who is a member of the Board, exercises all the powers and functions of the Governor.

The capital of the Bank is \$5,000,000 and is held entirely by the Minister of Finance. The Bank of Canada Act as amended in 1954 provides that each year 20 p.c. of the Bank's annual profits (after provision for depreciation in assets, pension funds and such matters) shall be allocated to the Rest Fund until the Rest Fund reaches an amount five times the paid-up capital of the Bank and the remainder shall be paid to the Receiver General and placed to the credit of the Consolidated Revenue Fund. At the end of 1957, the Rest Fund of the Bank reached its maximum of \$25,000,000 so that, since that date, the whole of the Bank's profits have been transferred to the Receiver General.

The head office of the Bank is at Ottawa. It has agencies at Halifax, Saint John, Montreal, Ottawa, Toronto, Winnipeg, Regina, Calgary and Vancouver and is represented in St. John's and Charlottetown. The agencies are concerned chiefly with the functions of the Bank as fiscal agent for the Government of Canada and with the issue and redemption of currency. The Industrial Development Bank, which is described on the following page, is a subsidiary of the Bank of Canada.

The Bank of Canada Act requires that statements of the assets and liabilities of the Bank on each Wednesday and on the last day of each month be published in the *Canada Gazette*. A summary of the statements as at Dec. 31, 1958-61, appears in Table 1.

1.—Assets and Liabilities of the Bank of Canada, as at Dec. 31, 1958-61

Item	1958	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Assets				
Foreign exchange.....	55.3	41.2	54.5	44.8
Advances to chartered and savings banks.....	2.0	—	—	—
Investments—				
Treasury bills of Canada.....	35.9	305.9	404.4	312.2
Other securities issued or guaranteed by Canada maturing within 2 years.....	245.2	514.5	353.4	513.9
Other securities issued or guaranteed by Canada not maturing within 2 years.....	2,340.6	1,800.2	1,931.9	1,999.6
Bonds and debentures issued by Industrial Development Bank.....	52.9	58.6	64.4	88.0
Other securities.....	38.5	18.5	24.4	25.0
Industrial Development Bank capital stock.....	25.0	25.0	25.0	27.0
Bank premises.....	9.8	10.9	11.5	10.6
All other assets.....	139.1	193.3	175.0	221.9
Totals, Assets.....	2,944.4	2,968.1	3,044.4	3,242.9

1.—Assets and Liabilities of the Bank of Canada, as at Dec. 31, 1958-61—concluded

Item	1958	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Liabilities				
Capital paid up.....	5.0	5.0	5.0	5.0
Reserve Fund.....	25.0	25.0	25.0	25.0
Notes in Circulation—				
Held by chartered banks.....	338.2	315.7	329.8	346.6
All other.....	1,659.9	1,704.8	1,731.9	1,800.2
Deposits—				
Government of Canada.....	34.9	45.6	35.7	41.4
Chartered banks.....	662.7	637.0	662.6	749.4
Other.....	25.0	34.8	33.3	33.4
Foreign currency liabilities.....	83.9	50.0	68.6	59.0
All other liabilities.....	109.9	150.2	152.5	182.8
Totals, Liabilities.....	2,944.4	2,968.1	3,044.4	3,242.9

The Industrial Development Bank.—The Industrial Development Bank, a subsidiary of the Bank of Canada, was incorporated by Act of Parliament during 1944 and its banking operations commenced on Nov. 1, 1944. Its functions are described in the preamble to the Act as follows:—

“To promote the economic welfare of Canada by increasing the effectiveness of monetary action through ensuring the availability of credit to industrial enterprises which may reasonably be expected to prove successful if a high level of national income and employment is maintained, by supplementing the activities of other lenders and by providing capital assistance to industry with particular consideration to the financing problems of small enterprises.”

The President of the Industrial Development Bank is the Governor of the Bank of Canada and the Directors are the Directors of the Bank of Canada and the Deputy Minister of Trade and Commerce. The authorized capital of the Bank is \$50,000,000 and it may also raise funds by the issue of bonds and debentures provided that its total direct liabilities and contingent liabilities in the form of guarantees and underwriting agreements do not exceed five times the aggregate of the Bank's paid-up capital and Reserve Fund.

The Bank may extend financial assistance to industrial enterprises in Canada which, by definition in the Act, include any industry, trade or other business undertaking of any kind. With respect to such enterprises the Bank is empowered to lend money or guarantee loans; and where an enterprise is a corporation the Bank may also enter into underwriting agreements with regard to any issue of stock, bonds or debentures; acquire stock, bonds or debentures from the issuing corporation or any person with whom the Bank has entered into an underwriting agreement; and acquire certificates issued by a trustee to finance the purchase of transportation equipment. The total amount of commitments of the Bank, in the form of loans, guarantees, etc., in excess of \$200,000 each, may not exceed \$200,000,000.

The Bank may accept any form of collateral security against its advances, including realty and chattel mortgages which constitute the usual kind of security taken. The Bank is intended to supplement the activities of other lending agencies, not to compete with them, and the Act of Incorporation provides that it should extend credit only when, in the Bank's opinion, credit or other financial resources would not otherwise be available on reasonable terms and conditions. Its lending takes the form of fixed-term capital

loans rather than current operating loans. The Bank is specifically prohibited from engaging in the business of deposit banking. It has branch offices in the following cities: St. John's, Halifax, Saint John, Moncton, Quebec, Trois Rivières, Montreal, Ottawa, Toronto, Hamilton, Waterloo, London, Sudbury, Port Arthur, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver and Victoria.

2.—Assets and Liabilities of the Industrial Development Bank, as at Sept. 30, 1958-61

Item	1958	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Assets—				
Loans outstanding ¹	88.8	96.9	103.1	123.2
Other assets.....	1.6	1.8	3.7 ^r	1.8
Totals, Assets.....	90.4	98.7	106.8	125.0
Liabilities—				
Capital and reserves.....	37.9	39.4	41.8	44.2
Bonds and debentures outstanding.....	51.0	57.7	63.6	78.9
Other liabilities.....	1.5	1.6	1.4	1.9
Totals, Liabilities.....	90.4	98.7	106.8	125.0
Loan Transactions—				
Disbursements.....	31.1	29.3	29.7	47.5
Repayments.....	14.1	20.4	23.4	27.1
Loans outstanding plus undistributed authorizations.....	104.3	109.1	119.8	154.2
	No.	No.	No.	No.
Customers on books.....	1,321	1,609	1,966	2,768

¹ Includes investments; the change in loans outstanding does not equal the difference between disbursements and repayments because of year-end accounting adjustments.

Section 2.—Currency

Subsection 1.—Notes and Coinage

Note Circulation.—The development by which bank notes became the chief circulating medium in Canada prior to 1935 is described in the 1938 Year Book, pp. 900-905. Those features of the development which then became permanent are outlined in the 1941 Year Book, pp. 809-810.

When the Bank of Canada commenced operations in 1935 it assumed liability for Dominion notes outstanding. These were replaced in public circulation and partly replaced in cash reserves by the Bank's legal tender notes in denominations of \$1, \$2, \$5, \$10, \$20, \$50 and \$100. Deposits of chartered banks at the Bank of Canada completed the replacement of the old Dominion notes of \$1,000 to \$50,000 denomination that had previously been used as cash reserves.

The chartered banks were required under the Bank Act of 1934 to reduce gradually the issue of their own bank notes during the years 1935-45 to an amount not in excess of 25 p.c. of their paid-up capital on Mar. 11, 1935. Bank of Canada notes thus replaced chartered bank notes as the issue of the latter was reduced. Further restrictions introduced by the 1944 revision of the Bank Act cancelled the right of chartered banks to issue or re-issue notes after Jan. 1, 1945, and in January 1950 the chartered banks' liability for such of their notes issued for circulation in Canada as then remained outstanding was transferred to the Bank of Canada in return for payment of a like sum to the Bank of Canada.

3.—Bank of Canada Note Liabilities and Other Notes in Circulation, as at Dec. 31, 1957-61

Denomination	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Canada Notes—					
\$1.....	72,589	75,873	78,402	81,733	86,114
\$2.....	51,952	53,597	55,076	57,622	60,640
\$5.....	139,837	143,010	144,702	149,545	156,501
\$10.....	528,575	533,678	521,309	519,559	533,941
\$20.....	582,163	627,514	647,276	676,549	719,712
\$25.....	46	46	46	46	46
\$50.....	131,893	143,606	145,461	147,596	152,106
\$100.....	365,479	391,629	395,383	396,328	407,307
\$500.....	51	49	46	41	38
\$1,000.....	14,661	15,928	19,549	19,547	18,198
Totals.....	1,890,159	1,984,630	2,007,250	2,048,567	2,133,704
Chartered banks' notes¹.....	8,799	8,655	8,519	8,423	8,363
Dominion of Canada notes¹.....	4,648	4,645	4,641	4,638	4,637
Provincial notes¹.....	28	28	28	28	28
Defunct banks' notes¹.....	88	88	88	88	88
Totals, Bank of Canada Note Liabilities.....	1,903,721	1,998,046	2,020,525	2,061,743	2,146,820
Held by—					
Chartered banks.....	348,606	338,176	315,703	329,841	346,630
Others.....	1,555,115	1,659,870	1,704,822	1,731,902	1,800,190

¹ Note issues in the process of being retired, the liability for which has been taken over by the Bank of Canada from the original issuers.

4.—Note Circulation in the Hands of the Public, as at Dec. 31, 1952-61

As at Dec. 31—	Bank of Canada Notes ¹	Per Capita	As at Dec. 31—	Bank of Canada Notes ¹	Per Capita
	\$	\$		\$	\$
1952.....	1,288,688,392	89.13	1957.....	1,555,115,143	93.63
1953.....	1,335,332,954	89.95	1958.....	1,659,870,299	97.18
1954.....	1,361,874,433	89.09	1959.....	1,704,822,198	97.51
1955.....	1,449,045,166	92.31	1960.....	1,731,902,386	96.92
1956.....	1,497,765,781	93.14	1961.....	1,800,190,122	98.70

¹ Total issue less notes held by chartered banks.

Coinage. *—Under the Currency, Mint and Exchange Fund Act (RSC 1952, c. 315), gold coins may be issued in denominations of twenty dollars, ten dollars and five dollars (nine-tenths fine or millesimal fineness, 900). Subsidiary coins include: silver coins in denominations of one dollar, 50 cents, 25 cents, 10 cents (eight-tenths fine or millesimal fineness, 800); pure nickel five-cent coins; and bronze (copper, tin and zinc) one-cent coins. Provision is made for the temporary alteration of composition in event of a shortage of prescribed metals. A tender of payment of money in coins is a legal tender in the case of gold coins issued under the authority of Sect. 4 of the Currency, Mint and Exchange Fund Act for the payment of any amount; in the case of silver coins for the payment of an amount up to \$10; nickel coins for payment up to \$5; and bronze coins up to 25 cents.

* Revised by the Master of the Royal Canadian Mint, Ottawa.

5.—Canadian Coin in Circulation, as at Dec. 31, 1952-61

NOTE.—The figures shown are of net issues of coin. Figures from 1901 are given in the corresponding table of previous Year Books beginning with the 1927-28 edition.

As at Dec. 31—	Silver	Nickel	Tombac ¹	Steel	Bronze	Total	Per Capita
	\$	\$	\$	\$	\$	\$	\$
1952.....	83,463,939	7,814,398	584,882	2,278,329	11,476,591	105,618,139	7.30
1953.....	89,550,236	7,813,081	570,847	3,109,691	12,130,181	113,174,036	7.62
1954.....	91,350,637	7,810,723	560,577	3,458,758	12,392,389	115,573,084	7.56
1955.....	95,574,457	8,076,800	555,912	3,457,712	12,956,807	120,621,688	7.68
1956.....	100,922,477	8,545,507	552,868	3,456,782	13,742,282	127,219,916	7.91
1957.....	107,116,450	8,910,869	550,743	3,455,886	14,745,243	134,779,191	8.11
1958.....	115,120,076	9,289,481	549,630	3,455,062	15,322,156	143,736,405	8.42
1959.....	123,344,059	9,865,012	549,237	3,454,209	16,150,222	153,362,739	8.77
1960.....	136,710,958	11,599,263	549,090	3,452,876	16,895,953	169,208,140	9.47
1961.....	146,902,352	14,110,198	549,021	3,451,708	18,311,853	183,325,132	10.05

¹ Tombac, a copper-zinc alloy, was used to conserve nickel for war purposes; no coins of this metal have been issued since 1944.

The Royal Canadian Mint.*—The Mint at Ottawa was established as a branch of the Royal Mint under the (Imperial) Coinage Act 1870 and opened on Jan. 2, 1908. In 1931 (RSC 1952, c. 240) it was constituted a branch of the Canadian Department of Finance and has since operated as the Royal Canadian Mint. From 1858 the British North American provinces, and later Canada, obtained their coins from the Royal Mint at London or from The Mint, Birmingham, England. Before that date, coins were mainly British, United States and Spanish. In its earlier years the operations of the Mint in Canada were confined to the production of gold, silver and bronze coins for domestic circulation and of British sovereigns and small coins struck under contract for Newfoundland and Jamaica.

Before 1914 only small quantities of gold bullion were refined but during World War I the Mint came to the assistance of the British Government by establishing a refinery in which nearly 20,000,000 oz.t. of South African gold were treated on Bank of England account. The subsequent development of the gold mining industry in Canada resulted in gold refining becoming one of the principal activities of the Mint. Fine gold produced from the rough bullion shipments received from the mines is purchased by the Mint and later delivered to the Bank of Canada for account of the Minister of Finance in bars of approximately 400 oz.t. each or, for those mines authorized to sell gold in the open market, the bullion is shipped according to instructions from the mines. The fine silver extracted from the rough gold is generally used for coinage purposes.

* Revised by the Master of the Royal Canadian Mint, Ottawa.

6.—Receipts of Gold Bullion at the Royal Canadian Mint and Bullion and Coinage Issued, 1952-61

NOTE.—Figures from 1926 are given in the corresponding table of previous Year Books beginning with the 1946 edition.

Year	Gold Received	Gold Bullion Issued	Silver Coin Issued	Nickel Coin Issued	Steel Coin Issued	Bronze Coin Issued
	oz. t.	oz. t.	\$	\$	\$	\$
1952.....	3,953,158	4,031,063	4,869,552	597	576,965	683,820
1953.....	3,684,074	3,626,497	6,138,686	234	831,915	655,130
1954.....	3,829,431	3,998,836	1,864,968	27	350,229	263,897
1955.....	3,947,637	3,952,764	4,269,157	267,801	—	566,863
1956.....	3,801,789	3,774,599	5,389,464	469,993	—	786,855
1957.....	3,896,084	3,776,711	6,236,429	366,493	—	1,004,221
1958.....	3,958,450	4,088,706	8,044,753	379,616	—	578,274
1959.....	3,908,640	3,836,680	8,273,563	576,680	—	829,116
1960.....	4,024,626	4,014,771	13,432,251	1,735,707	—	748,101
1961.....	3,800,137	3,812,054	10,299,581	2,512,369	—	1,417,544

Subsection 2.—Canadian Dollar Currency and Bank Deposits

Bank of Canada statistics concerning holdings of currency and bank deposits are given in Table 7.

7.—Canadian Dollar Currency and Chartered Bank Deposits, as at Dec. 31, 1952-61

(Millions of dollars)

As at Dec. 31—	Currency Outside Banks			Chartered Bank Deposits				Total Currency and Chartered Bank Deposits ¹		
	Notes	Coin	Total	Personal Savings Deposits ²	Govern- ment of Canada Deposits	Other Deposits ^{1,2}	Total ¹	Total Including Govern- ment Deposits	Held by General Public	
									Including Personal Savings Deposits	Excluding Personal Savings Deposits ²
1952.....	1,289	88	1,377	4,600	49	3,281	7,930	9,307	9,258	4,658
1953.....	1,335	94	1,430	4,756	473	3,130	8,359	9,789	9,316	4,560
1954.....	1,362	96	1,458	5,218	176	3,462	8,856	10,314	10,137	4,920
1955.....	1,449	101	1,550	5,633	517	3,697	9,847	11,397	10,880	5,248
1956.....	1,498	108	1,605	6,007	246	3,580	9,833	11,438	11,192	5,185
1957.....	1,555	112	1,667	6,108 ²	423	3,725 ²	10,256	11,923	11,500	5,392 ²
1958.....	1,660	121	1,781	6,844	319	4,303	11,466	13,247	12,927	6,084
1959.....	1,705	128	1,832	6,900	404	4,057	11,360	13,193	12,789	5,890
1960.....	1,732	144	1,876	7,215	510	4,313	12,037	13,914	13,404	6,189
1961.....	1,800	158	1,959	7,618	588	4,998	13,205	15,163	14,575	6,957

¹ Less total float, i.e., cheques and other items in transit.

² The deposit balances of religious, educational and welfare institutions and personal accounts used mainly for business purposes were reclassified from "personal savings deposits" to "other notice deposits" as at Sept. 30, 1957, in the returns of the banks to the Department of Finance; from that date the figures are thus not comparable with those for previous years. The amount of deposits reclassified was approximately \$140,000,000.

Section 3.—The Commercial Banking System*

The Canadian commercial banking system consists of eight privately owned banks, chartered by Parliament and operating under the provisions of the Bank Act. Of these eight, five are nation-wide institutions; two operate mainly in the Province of Quebec and in other French-speaking areas and one, a subsidiary of a Netherlands bank, has a branch in each of the three largest cities. At the end of 1961, these banks together operated 5,381 banking offices of which 5,224 were in Canada and 157 abroad. At that date Canada had roughly one banking office for every 3,300 people, compared with one for 4,000 in Britain and one for 7,300 in the United States. These facts illustrate the chief distinguishing features of the Canadian banking system: a relatively small number of large banks having an extensive network of branches, operating under a single legislative jurisdiction (the Federal Government) and under one detailed and comprehensive statute (the Bank Act).

Since the first banks were established during the first quarter of the nineteenth century, the commercial banking system has developed in response to the changing needs of the Canadian economy, an evolution which is still in rapid progress today. Canadian economic development has been characterized by two main features—successive but by no means continuous periods of rapid geographical expansion of settlement, and a continued dependence on export markets as new natural resources (agricultural land, forests and

* Condensed and revised article prepared for the 1961 Year Book by J. Douglas Gibson, General Manager of The Bank of Nova Scotia. The early history of currency and banking in Canada is given in the 1938 Year Book, pp. 906-905. A list of the banks at Confederation appears in the 1940 Year Book, p. 897, and bank absorptions since 1867 are given in the 1961 edition, pp. 812-813. A table in the 1937 Year Book, pp. 894-895, shows the insolvencies since Confederation; the last insolvency occurred in 1923.

minerals) were exploited. Thus, Canadian banking has continually had to migrate to new areas and to find appropriate methods of financing new industries and new products; and it has from the beginning possessed a strongly 'international' character* with a good deal of emphasis on the financing of foreign trade, on foreign exchange operations, and on correspondent relations with foreign banks. At the same time, as regional isolation has gradually broken down and the economy has been integrated, banks originating in local areas have become part of a nation-wide banking system, in part by process of amalgamation particularly marked in the first twenty-five years of the present century.

Bank Legislation

From the first, banks in what is now Canada sought to operate under Acts of incorporation (charters) passed by the legislatures of the colonies in which they operated. As new banks were incorporated and older ones obtained charter renewals, there developed in the bank charters themselves a quite extensive and fairly uniform code of banking law. At Confederation, responsibility for banking and currency was given to the Dominion Government and in 1871 the first general Bank Act was passed. This legislation is subject to review and revision every ten years, a feature that has helped to keep the banking system adapted to the needs of a changing economy.

Certain characteristic features of the Canadian financial system have thus emerged—notably the traditional emphasis of the chartered banks on "commercial" banking. The early banks were established by merchants for merchants. Their note issues provided a badly needed medium of internal exchange and they advanced working capital to finance the processes of trade. The aim was to make lending as far as possible short-term and self-liquidating. The bank charters from the first contained prohibitions against lending on the security of real property, except as secondary or subsequent security. Now, however, exceptions to the rule against lending upon security of real property, incorporated in the Bank Act in 1944 and 1954, allow the banks to participate in government-guaranteed loans to farmers and fishermen and for housing constructed under the National Housing Act, to lend to oil companies on the security of oil "in, under or upon the ground" and production equipment, and to extend their consumer-finance lending by taking chattel mortgages. It is also permissible for banks to make advances on the security of natural products and goods, wares and merchandise while they remain in the borrower's possession. These 'pledge' arrangements have facilitated loans to small businesses and farmers and have aided in commercial and manufacturing development, while giving the banks a reasonable degree of protection for their loans.

Today the Bank Act has become a most detailed and comprehensive piece of legislation which provides for the internal regulation and organization of the banks, for the auditing of their accounts, and for the ways in which their capital stock may be issued and transferred, their dividends paid, and their affairs settled in case of amalgamation, winding-up or insolvency. In addition, it states what cash reserves the banks must keep, what reports they must make to the Government and to the Bank of Canada about their affairs and sets forth a variety of rules governing the conduct of business with the public. The Bank Act also specifies the maximum rate of interest that may be charged on bank loans. (Since the 1944 Bank Act Revision this ceiling has been 6 p.c., replacing the 7-p.c. ceiling that had prevailed since 1871.) The banks derive their corporate existence from the Act, which states that "each bank. . . . is a body politic and corporate and this Act is its charter"; successive Bank Acts have empowered the banks to do business for a period of ten years, until the next revision of the Act.

Banking Operations

Operating under the Bank Act, the chartered banks at their branches accept deposits from the public, make loans covering a wide range of commercial, industrial, agricultural and consumer activities, deal in foreign exchange, receive and pay out Bank of Canada

* The larger Canadian banks have long maintained offices in London and New York. In addition, some Canadian banks for more than half a century have been providing an important part of commercial banking facilities in the Caribbean area (see Table 10, p. 1100). The Bank of Montreal opened an office in Tokyo in January 1962, the first to be established in Japan by a Canadian bank.

notes and coin, provide safekeeping facilities, and perform a variety of other services coming within the scope of the general business of banking. The head office of a Canadian bank does not transact ordinary day-to-day business with the public; it performs general administration and policy-making functions, manages the bank's investment portfolio, does its centralized accounting work, and maintains specialized departments devoted to inspection of branch operations, the development of branch office methods, the acquisition of new business, premises, staff, arrangements with foreign banks, advertising, etc.

Under its branch system, Canadian banking is able to provide standard banking facilities throughout the country. Every branch, even the smallest, can provide all banking services, and each has behind it the resources of a large bank, which means that lending requirements can be met just as well by a branch in a small town or a suburban branch as in the main branches of a large city. Branch banking also provides an excellent training for Canadian bank officers, through the system of promotion and transfer from branch to branch. Almost without exception, the chief executives of the Canadian banks have grown up in the service and have been trained in this way.

The branch system has proved to be most flexible and Canadian banking has been able to keep pace with settlement and economic development during its periods of most rapid growth. Particularly since the end of the Second World War, with a rapidly expanding economy, sharply rising population and growing urbanization, new branches have been opening at a very rapid rate. Offices have been established along the frontiers of the economy, in new towns, oil fields and mining camps, as well as in the long-established urban centres where industrial and commercial growth have so enlarged the demand for banking services. The banking needs of new groups of suburban dwellers have also been met by the establishment of offices in shopping centres. In all, the number of banking offices in Canada, which was about 3,300 at the end of 1939 and 3,100 at the end of 1945, grew by over 2,100 in the sixteen postwar years. As the growth in the number of branches suggests, Canadian banks have been taking full advantage of the expansive postwar atmosphere to extend the volume and variety of their services to industry and to individuals. Strongly competing for customers, they have offered a wide variety of new deposit arrangements, including new savings programs of various kinds and new forms of chequing accounts, and greatly broadened their lending activities.

By the end of the War, the banks had experienced more than fifteen years of restricted demand for commercial credit. Loans had declined sharply during the depression and shown only a slightly rising trend during the pre-war years of incomplete recovery and, of course, in the wartime economy bank lending was subject to a variety of restrictive influences. The result was a marked change in the composition of bank assets; by the end of 1945 security holdings accounted for about 55 p.c. of the banks' total assets, compared with a little over 40 p.c. just before the War and only about 15 p.c. in 1930. In the early years of postwar reconstruction, the economic control apparatus created for the War was gradually dismantled. The expansion of the private sector of the economy and the contraction of the government sector was quickly reflected in a shift of bank assets from government securities to commercial loans. Between the end of 1945 and the end of 1950, bank loans in Canadian currency increased from about 21 p.c. to 31 p.c. of total assets. There was, at the same time, a rapid growth in total assets, as the monetary authorities leaned to the side of relatively easy money conditions to stimulate the economy and to ward off the widely anticipated postwar recession. In the five years ended Dec. 31, 1950, total assets expanded from about \$7,300,000,000 to \$9,400,000,000, almost all of the increase being in Canadian assets.

It was not until the outbreak of the Korean war in June 1950, that the fear of inflation, arising from the heavy demands on Canadian resources, led to the adoption of restraining measures. Since then the banks have experienced substantial changes in their credit-granting capacity, as the country's official monetary policy was adapted to meet changes in business conditions. Alternating periods of ease and restraint have been marked by periods of rapidly rising bank assets followed by levelling-off phases, though never by actual declines.

The Korean boom of 1950-51 was followed, after only a short pause, by the investment boom of 1953-54. Recession in 1954-55 was accompanied by an easy monetary policy, during which the banks built up their liquid assets in the form of government bonds. Then a second and greater investment boom got under way in late 1955, which carried the Canadian economy and the banking system into another period when resources were strained to the limit. At this time new measures of restraint were introduced into the Canadian banking system by the monetary authorities, including an agreed secondary reserve ratio of 7 p.c. in addition to the cash reserves of 8 p.c. already prescribed in the Bank Act Revision of 1954. A further agreement with the Bank of Canada was aimed at restraining term loans for capital purposes* and in 1956 bank loans to instalment finance companies were also put under some restraint. The boom of 1955-57 was followed by a mild recession in 1957-58, moderate recovery in 1958-59, slackening in 1960 and recovery again in 1961. In this period the banks have not regained the liquidity which characterized earlier postwar recessions, and there has been a growing need to husband resources carefully for the various and growing alternative outlets which developed as the result of economic growth, and of the efforts of both the Government and the banks themselves to provide new uses for bank credit.

One of the first government measures was the Farm Improvement Loans Act of 1944, under which the chartered banks were authorized to make loans to farmers for the purchase of equipment and livestock and for making various improvements to their farm buildings and facilities. These loans are often for sizable amounts (an average about \$1,500) and the terms have been gradually extended to a maximum sum of \$7,500 outstanding to any one borrower with a maximum period of ten years (four years for implements). The banks are guaranteed against loss up to 10 p.c. of their loans made during the three-year "lending periods", up to a maximum total of loans by all banks. This total is \$400,000,000 for the lending period to end in mid-1962. By the end of 1961 the total amount of loans made under this Act was more than \$1,100,000,000.

The 1954 Revision of the Bank Act introduced a major change in banking practice, by enabling the banks to acquire mortgages issued under the National Housing Act. About 35 p.c. of all NHA mortgage loans in the years 1954-59 were made by the chartered banks, but at the end of 1959 the NHA interest rate was raised to 6½ p.c. and the banks withdrew from this field of lending. Notwithstanding this, by Dec. 31, 1961 they held some \$950,000,000 in NHA mortgages, representing about 5 p.c. of total assets.

Another change affecting housing in the 1954 Revision enabled the banks to make Home Improvement Loans under a guarantee system rather similar to the one developed for Farm Improvement Loans. By the end of 1961, Home Improvement Loans amounting to \$238,000,000 had been approved and the banks had about \$66,000,000 of such loans on their books.

A more recent measure, passed in November 1960, is the Small Business Loans Act, which guarantees, under terms to the banks almost exactly similar to those of the Farm Improvement Loan Act, certain types of bank loan to small businesses for the purposes of making capital improvements to premises and equipment. This provides for loans that do not fall within the usual scope of bank lending to small business, by reason of the term nature of the loan, together with the lack of collateral resources of the borrower. Of course, chartered banks already make loans to small businesses for a great variety of purposes, including many of a medium-term character; indeed, the working capital loan to the small-size or medium-size industry or commercial enterprise is the traditional stock-in-trade business of the chartered banks.

In April 1961 the charter of the Export Finance Corporation of Canada Limited, which had been incorporated by special Act of Parliament in June 1959 for private interests, was acquired by the chartered banks. The principal purpose of the Corporation is to assist in the medium-term (one to five years) financing of exports which have been insured by the Export Credit Insurance Corporation, a Crown company.

* Such loans were almost entirely a postwar innovation in Canadian lending practice, and had increased markedly during the easy-money period of 1954-55. Since 1956, term lending has generally been confined within narrower limits though it is still practised when conditions permit.

Still another area of lending which has expanded greatly in recent years is that of consumer credit. While the banks have always made some personal loans, they have not until recently moved aggressively into the general field of lending to the general public for the purchase of automobiles, consumer durables and debt consolidation. Following the 1954 Bank Act Revision, and partly as a result of the change then made which enabled the banks to take chattel mortgage security, some of the banks have developed extensive consumer credit divisions. Personal loans made by the banks, other than those secured by stocks and bonds and Home Improvement Loans, mounted from \$420,000,000 at the end of 1957 to \$1,067,000,000 outstanding at Mar. 31, 1962.

Outside of Canada, the Canadian banks have continued to expand their branch systems in the Caribbean area, though the two Canadian banks operating in Cuba have found it necessary to withdraw. Elsewhere abroad, the banks have expanded their representation in South America and in Europe. In recent years the growth of an international money market, following the economic recovery in Europe and the restoration of confidence in the stability of the Western economies and their currencies, has led to large movements of Western capital from one centre to another. The Canadian banks have participated extensively in this international money market, mainly through New York and London where most of them maintain large offices.

The postwar growth in bank assets has been accompanied by a substantial increase in total earnings. Earnings per share of capital employed did not increase to the same extent, however, as the banks found it necessary to raise new funds from time to time after 1950 in order to maintain an appropriate relationship between their shareholders' capital and the rapidly rising level of risk assets. The banks have been among the largest issuers of new share capital to Canadians in the postwar period.

Subsection 1.—Statistics of Chartered Banks

Branches of Chartered Banks.—Although there are fewer chartered banks now than at the beginning of the century, there has been a great increase in the number of branch banking offices. As a result of amalgamations, the number of banks declined from 34 in 1901 to 10 in 1931, and remained at that figure until the incorporation of a new bank—The Mercantile Bank of Canada—in 1953 brought the total to 11. Since then the amalgamation in 1955 of The Bank of Toronto and The Dominion Bank as The Toronto-Dominion Bank, the amalgamation of Barclays Bank (Canada) with the Imperial Bank of Canada in 1956 and the amalgamation of the Canadian Bank of Commerce and the Imperial Bank of Canada as the Canadian Imperial Bank of Commerce on June 1, 1961 have reduced this number to eight. The number of branches of chartered banks in each province periodically from 1868 is given in Table 8.

8.—Branches of Chartered Banks, by Province, as at Dec. 31 for Certain Years 1868-1961

NOTE.—Figures for 1920 and subsequent years include sub-agencies in Canada receiving deposits for the banks employing them; there were 768 such sub-agencies at Dec. 31, 1961.

Province or Territory	1868	1902	1905	1920	1926	1930	1940	1943	1946	1950	1959	1960	1961
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	—	—	—	—	—	—	—	—	—	39	69	71	76
Prince Edward Island....	—	9	10	41	28	28	25	23	23	23	27	27	27
Nova Scotia.....	5	89	101	169	134	135	134	126	127	144	169	173	176
New Brunswick.....	4	35	49	121	101	102	97	93	96	100	112	113	117
Quebec.....	12	137	196	1,150	1,072	1,183	1,083	1,041	1,067	1,161	1,405	1,427	1,454
Ontario.....	100	349	549	1,586	1,326	1,409	1,208	1,092	1,117	1,257	1,711	1,785	1,809
Manitoba.....	—	52	95	349	224	239	162	148	151	165	226	234	246
Saskatchewan.....	—	—	—	501	427	417	253	213	226	298	283	296	301
Alberta.....	—	—	30	424	269	301	172	163	190	246	372	391	409
British Columbia.....	2	46	55	242	186	229	192	180	216	294	462	511	534
Yukon and N.W.T.....	—	—	3	3	3	4	5	5	6	9	13	17	15
Canada.....	123	747	1,145	4,676	3,770	4,083	3,311	3,084	3,219	3,679	4,879	5,051	5,224

9.—Branches of Individual Canadian Chartered Banks, by Province, as at Dec. 31, 1961

NOTE.—This table includes 768 sub-agencies in Canada for receiving deposits.

Bank	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	21	2	25	17	163	323
The Bank of Nova Scotia.....	30	8	51	40	50	246
Banque Canadienne Nationale.....	—	—	—	—	575	19
Banque Provinciale du Canada.....	—	3	—	18	311	23
Canadian Imperial Bank of Commerce.....	7	8	25	15	157	569
The Mercantile Bank of Canada.....	—	—	—	—	1	—
The Royal Bank of Canada.....	18	5	72	22	137	352
The Toronto-Dominion Bank.....	—	1	3	5	60	336
Totals.....	76	27	176	117	1,454	1,869
	Man.	Sask.	Alta.	B.C.	Yukon and N.W.T.	Total
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	48	57	95	123	5	879
The Bank of Nova Scotia.....	19	31	47	68	—	590
Banque Canadienne Nationale.....	4	—	—	—	—	598
Banque Provinciale du Canada.....	—	—	—	—	—	355
Canadian Imperial Bank of Commerce.....	65	87	134	179	6	1,252
The Mercantile Bank of Canada.....	—	—	—	1	—	3
The Royal Bank of Canada.....	72	86	86	107	4	961
The Toronto-Dominion Bank.....	38	40	47	56	—	586
Totals.....	246	301	409	534	15	5,224

10.—Branches of Individual Canadian Chartered Banks Outside Canada, as at Dec. 31, 1959-61

NOTE.—This table does not include sub-agencies operating outside Canada, of which there were 20 in 1961.

Bank and Location	1959	1960	1961	Bank and Location	1959	1960	1961
	No.	No.	No.		No.	No.	No.
Bank of Montreal—				The Royal Bank of Canada—			
Britain.....	2	2	2	Britain.....	2	2	2
United States.....	2	2	2	British West Indies.....	20	22	25
France.....	3	3	3	United States.....	1	1	1
Germany.....	4	4	4	Cuba.....	24	—	—
The Bank of Nova Scotia—				Puerto Rico.....	5	5	5
Britain.....	2	2	2	Central and South America.....	25	26	25
British West Indies.....	21	22	26	Haiti.....	1	1	1
Dominican Republic.....	2	2	2	Dominican Republic.....	7	8	8
United States.....	1	1	1	France.....	1	1	1
Cuba.....	8	—	—	The Toronto-Dominion Bank—			
Puerto Rico.....	3	3	3	Britain.....	2	2	2
Trinidad.....	2	2	2	United States.....	1	1	1
Canadian Imperial Bank of Commerce—				Banque Canadienne Nationale—			
Britain.....	2	2	2	France.....	1	1	1
British West Indies.....	9	10	11				
United States.....	5	5	5	Totals.....	156	130	137

Financial Statistics of the Chartered Banks.—The classification of chartered bank assets and liabilities was revised by the Bank of Canada Act 1954, so that the statistical series given in the following tables begins with that year. Figures shown in Table 11 prior to July 1954 have been adjusted to comply with the new classification. Month-end data are available from Dec. 31, 1954, to date in the Bank of Canada *Statistical Summary*.

11.—Assets and Liabilities of the Chartered Banks, as at Dec. 31, 1952-61

(Millions of dollars)

As at Dec. 31—	ASSETS							
	Bank of Canada Deposits and Notes	Canadian Day-to- Day Loans	Treasury Bills	Govern- ment of Canada Direct and Guaranteed Bonds	Other Canadian Securities, Insured Residential Mortgages and Loans in Canada	Canadian Dollar Items in Transit (net)	Foreign Cash Items, Securities and Loans	Total Assets ¹
1952.....	899	—	138	2,647	4,353	752	980	10,128
1953.....	888	—	244	2,516	4,878	751	1,064	10,656
1954.....	791	68	360	2,953	4,963	827	1,142	11,433
1955.....	840	81	427	2,632	6,207	1,002	1,127	12,702
1956.....	882	74	740	1,675	6,820	1,330	1,486	13,428
1957.....	866	210	805	1,835	6,953	1,151	1,970	14,244
1958.....	1,001	123	950	2,562	7,365	1,224	2,165	15,840
1959.....	953	101	974	1,827	8,172	919	2,393	15,835
1960.....	992	172	967	2,088	8,510 ⁺	884	2,725	16,917
1961.....	1,096	215	1,157	2,639	8,886	981	3,510	19,153
LIABILITIES								
	Canadian Dollar Deposits					Foreign Currency Deposits	Share- holders' Equity	Total Liabilities ¹
	Govern- ment of Canada	Notice		All Other	Total			
		Personal Savings	Other Notice					
1952.....	49	4,600	325	3,662	8,636	905	381	10,128
1953.....	473	4,756	278	3,603	9,111	963	419	10,656
1954.....	176	5,218	397	3,891	9,683	1,030	521	11,433
1955.....	517	5,633	464	4,234	10,848	1,056	567	12,702
1956.....	246	6,007	444	4,465	11,162	1,369	653	13,428
1957.....	423	6,108	548	4,328	11,407	1,827	732	14,244
1958.....	319	6,844	618	4,909	12,690	2,077	813	15,840
1959.....	404	6,900	558	4,418	12,279	2,372	926	15,835
1960.....	510	7,215	576	4,621	12,921	2,654	1,004	16,917
1961.....	588	7,618	929	5,051	14,186	3,488	1,071	19,153

¹ Includes other items not specified.

12.—Detailed Statement of Chartered Bank Assets and Liabilities, as at Dec. 31, 1959-61

Assets and Liabilities	1959	1960	1961
	\$'000	\$'000	\$'000
Assets—			
Gold and coin in Canada.....	25,509	39,184	30,980
Gold and coin outside Canada.....	1,352	1,032	1,085
Notes of and deposits with Bank of Canada.....	952,685	992,426	1,096,060
Government and bank notes other than Canadian.....	52,765	43,931	16,650
Deposits with other banks in Canadian currency.....	4,252	4,842	9,683
Deposits with other banks in currencies other than Canadian.....	360,842	531,516	1,007,270
Cheques and other items in transit (net).....	864,963	832,874	844,782
Government of Canada treasury bills.....	973,807	967,209	1,156,888
Other Government of Canada direct and guaranteed securities maturing within two years, not exceeding market value.....	657,481	615,288	1,088,500
Government of Canada direct and guaranteed securities maturing after two years, not exceeding market value.....	1,169,260	1,472,389	1,550,743
Canadian provincial government direct and guaranteed securities, not exceeding market value.....	346,168	323,819	351,980
Canadian municipal and school corporation securities, not exceeding market value.....	204,154	207,962	231,264

**12.—Detailed Statement of Chartered Bank Assets and Liabilities, as at Dec. 31,
1959-61—concluded**

Assets and Liabilities	1959	1960	1961
	\$'000	\$'000	\$'000
Assets—concluded			
Other Canadian securities, not exceeding market value.....	512,401	473,009	470,319
Securities other than Canadian, not exceeding market value.....	525,973	556,838	672,745
Mortgages and hypothecs insured under the National Housing Act 1954, less provision for estimated loss.....	967,870	970,592	952,671
Call and short loans in Canada to brokers and investment dealers, secured	239,872	310,208	344,897
Call and short loans outside Canada to brokers and investment dealers, secured.....	711,064	814,479	843,833
Loans to Canadian provincial governments.....	38,574	127,726	45,450
Loans to Canadian municipalities and school corporations, less provision for estimated loss.....	231,268	216,922	247,172
Other current loans in Canada, less provision for estimated loss.....	5,731,669	6,050,474	6,455,888
Other current loans outside Canada, less provision for estimated loss.....	794,301	813,754	1,068,744
Non-current loans, less provision for estimated loss.....	1,399	1,425	1,423
Bank premises at cost, less amounts written off.....	205,780	233,760	254,255
Shares of and loans to corporations controlled by the bank.....	48,336	51,443	52,979
Customers' liability under acceptances, guarantees and letters of credit as per contra.....	206,808	257,220	323,086
Other assets.....	6,368	6,774	4,137
Totals, Assets.....	15,834,924	16,917,096	19,153,484
Liabilities—			
Deposits by Government of Canada in Canadian currency.....	403,585	509,892	587,955
Deposits by Canadian provincial governments in Canadian currency.....	136,357	118,836	134,313
Deposits by other banks in Canadian currency.....	137,656	200,540	216,095
Deposits by other banks in currencies other than Canadian.....	529,636	646,881	702,518
Personal savings deposits payable after notice, in Canada, in Canadian currency.....	6,899,639	7,214,692	7,618,100
Other deposits payable after notice, in Canadian currency.....	557,542	575,861	928,971
Other deposits payable on demand, in Canadian currency.....	4,144,353	4,301,354	4,700,545
Other deposits in currencies other than Canadian.....	1,842,151	2,007,443	2,785,945
Acceptances, guarantees and letters of credit.....	206,808	257,220	323,086
Other liabilities.....	51,549	80,740	84,918
Capital paid up.....	254,115	265,564	275,366
Rest account.....	661,378	730,154	786,791
Undivided profits at latest fiscal year-end.....	10,155	7,919	8,881
Totals, Liabilities.....	15,834,924	16,917,096	19,153,484

13.—Canadian Cash Reserves, 1952-61

Note.—For periods prior to July 1954 all figures are daily averages; from July 1954, in accordance with the Bank Act 1954, Bank of Canada deposits are averages of the juridical days in the month shown while Bank of Canada notes and Canadian dollar deposits are averages of the four consecutive Wednesdays ending with the second last Wednesday in the previous month.

(Millions of dollars)

Year	Cash Reserves			Canadian Dollar Deposit Liabilities ¹	Average Cash Reserve Ratio ²
	Bank of Canada Deposits	Bank of Canada Notes	Total		
1952.....	606	239	844	8,110	10.4
1953.....	627	256	883	8,624	10.2
1954—January to June.....	634	260	894	8,820	10.1
1954—July to December.....	525	286	811	9,097	8.9
1955.....	541	293	834	9,915	8.4
1956.....	548	325	873	10,527	8.3
1957.....	535	335	870	10,601	8.2
1958.....	607	336	943	11,452	8.2
1959.....	648	351	999	12,187	8.2
1960.....	625	360	985	12,052	8.2
1961.....	673	367	1,040	12,804	8.1

¹ From July 1954 the figures are not adjusted for items in transit and are not strictly comparable with the figures for earlier periods.

² Prior to July 1, 1954, the statutory minimum requirement was 5 p.c. for each day; since that date it has been a monthly average of 8 p.c.

Liquid Asset Ratio.—In the course of discussions with the chartered banks in November and December 1955, the Bank of Canada urged the adoption of a standard practice regarding the maintenance of a minimum ratio of liquid assets (cash, day-to-day loans and treasury bills) to deposits. The purpose of this suggestion was to establish a working principle of bank operations which would help the central bank in the task of restraining inflationary pressures that might threaten in the future. After discussion the banks agreed to work to achieve, by May 31, 1956, a minimum liquid asset ratio of 15 p.c. which they would endeavour to maintain on a daily average basis from June on. On this basis, fluctuations above or below 15 p.c. might occur from day to day or week to week, but for the month as a whole the average would not be below the target ratio. From June 1956 the banks have maintained a daily average ratio of at least 15 p.c.

14.—Classification of Chartered Bank Deposit Liabilities Payable to the Public in Canada in Canadian Currency, as at Sept. 30, 1960 and 1961

Deposit Accounts of the Public of —	1960			1961		
	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public
	No.	No.	No.	No.	No.	No.
Less than \$100.....	5,574,443	1,087,231	6,661,674	5,902,275	1,175,674	7,077,949
\$100 or over but less than \$1,000.....	3,146,373	828,148	3,974,521	3,218,097	835,455	4,053,552
\$1,000 or over but less than \$10,000.....	1,601,017	335,487	1,940,104	1,655,950	345,564	2,001,523
\$10,000 or over but less than \$100,000.....	75,274	54,902	130,176	82,981	57,827	140,808
\$100,000 or over.....	795	5,587	6,382	1,125	6,413	7,538
Totals, Deposits.....	10,401,502	2,311,355	12,712,857	10,860,437	2,420,933	13,281,370

15.—Classification of Chartered Bank Loans in Canadian Currency, as at Dec. 31, 1959-61

Class of Loan	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000
General Loans—			
Personal.....	1,060.9	1,199.2	1,431.0
To individuals, fully secured by marketable bonds and stocks.....	232.3	286.4	335.6
Home improvement loans.....	59.9	56.0	65.7
To individuals, not elsewhere classified.....	718.7	856.8	1,029.7
Farmers—			
Farm Improvement Loans Act.....	160.2	178.1	194.3
Other farm loans.....	229.3	241.5	290.7
Industry.....	1,231.7	1,241.0	1,369.0
Chemical and rubber products.....	67.6	49.2	50.0
Electrical apparatus and supplies.....	63.2	60.9	67.3
Foods, beverages and tobacco.....	211.3	229.3	243.0
Forest products.....	165.2	179.7	185.7
Furniture.....	23.3	24.4	28.0
Iron and steel products.....	188.9	197.7	206.0
Mining and mine products.....	110.0	85.9	101.3
Petroleum and products.....	98.2	116.4	102.6
Textiles, leather and clothing.....	160.9	161.0	170.4
Transportation equipment.....	74.6	68.2	111.3
Other products.....	75.0	74.2	103.3
Merchandisers.....	821.5	858.4	888.6
Construction contractors.....	308.2	309.0	315.6
Public utilities, transportation and communications.....	170.1	216.7	165.4
Other business.....	551.8	594.5	794.3
Religious, educational, health and welfare institutions.....	167.8	193.8	208.3
Totals, General Loans.....	4,701.4	5,032.1	5,647.2

**15.—Classification of Chartered Bank Loans in Canadian Currency, as at
Dec. 31, 1959-61—concluded**

Class of Loan	1959	1960	1961
	\$'000,000	\$'000,000	\$'000,000
Other Loans—			
Provincial governments.....	38.6	127.7	45.5
Municipal governments and school districts.....	231.3	216.9	247.2
Stockbrokers.....	71.7	64.9	64.5
Investment dealers.....	67.1	73.0	65.1
Loans to finance the purchase of Canada Savings Bonds.....	187.8	185.9	189.2
Grain dealers and exporters.....	434.4	462.9	348.0
Instalment and other finance companies.....	409.4	371.0	272.9
Totals, Other Loans.....	1,440.3	1,502.3	1,232.3
Grand Totals, Loans in Canadian Currency.....	6,141.7	6,534.5	6,879.5

**16.—Chartered Bank Earnings, Expenses and Additions to Shareholders' Equity,
Fiscal Years Ended in 1957-61**

NOTE.—The financial years of six banks end on Oct. 31, two on Nov. 30 and one on Sept. 30.

(Millions of dollars)

Item	1957	1958	1959	1960	1961
Current Operating Earnings—					
Interest and discount on loans.....	380.6	386.9	455.1	525.5	540.5
Interest, dividends and trading profits on securities ¹	118.4	160.5	169.4	182.3	196.6
Exchange, commission, service charges and other current operating earnings.....	109.5	126.0	122.3	134.6	143.1
Totals, Current Operating Earnings.....	608.5	673.4	746.8	842.4	880.2
Current Operating Expenses—²					
Interest on deposits.....	183.4	203.4	241.2	270.9	290.8
Remuneration to employees.....	188.3	198.0	211.6	229.7	243.8
Contributions to pension funds.....	13.8	12.3	13.1	13.2	13.3
Provision for depreciation of bank premises.....	12.7	14.3	16.4	18.4	19.6
Other current operating expenses ³	86.0	91.9	102.5	113.7	122.8
Totals, Current Operating Expenses².....	484.2	519.9	584.8	645.9	690.3
Net current operating earnings².....	124.3	153.5	162.0	196.5	189.9
Capital profits and non-recurring items ⁴	0.4	1.5	3.3	3.7	1.5
Less provision for losses and addition to inner reserves, net ⁵	2.8	16.0	32.3	25.2	-10.6
Less provision for income taxes ⁶	56.6	69.6	65.2	90.7	101.7
Leaving for dividends and shareholders' equity.....	65.3	69.4	67.8	84.3	100.3
Dividends to shareholders.....	35.4	40.0	47.6	54.0	57.8
Additions to shareholders' equity.....	29.9	29.4	20.2	30.3	42.5
ADDITIONS TO SHAREHOLDERS' EQUITY					
Undivided Profits—					
From operating earnings, net after transfers to rest account.....	3.2	-1.5	2.7	-2.2	1.0
Rest Account—					
From operating earnings and undivided profits.....	8.0	14.2	9.0	16.8	14.5
From retransfers from inner reserves.....	18.7	16.8	8.5	15.7	27.1
From premium on new shares.....	33.3	28.6	72.7	36.2	14.6
Capital Paid Up—					
From issue of new shares.....	16.5	10.5	31.7	11.5	9.4
NET ADDITIONS TO SHAREHOLDERS' EQUITY.....	79.7	68.6	124.7	78.0	66.6

¹ Realized profits and losses on disposal of securities are included in operating earnings.

² Before provision for income taxes, losses, and transfers to inner reserves.

³ Includes taxes other than income taxes.

⁴ Profits and losses on sale of fixed assets and adjustments relating to prior years.

⁵ After amounts retransferred to rest account.

⁶ Includes income taxes on taxable portion of additions to and amounts retransferred from inner reserves, and foreign income taxes.

Cheque Payments.—A monthly record of the value of cheques charged to customer accounts at all chartered bank offices in 35 major clearing-house centres of Canada is available from 1924. Except for a minor setback in 1938, the value of cheques cashed shows a continuously upward trend from 1932, the low point of the depression years. The total \$293,784,342,000 in 1961 was a record, 850 p.c. greater than in 1938; the increase equalled the gain in gross national product during the same period. The advance was well distributed throughout Canada's five economic areas. British Columbia showed the largest gain with an increase of 955 p.c. The Prairie Provinces were second with an advance of 896 p.c., followed by Ontario with 876 p.c., the Atlantic Provinces with 819 p.c. and Quebec with 775 p.c.

Value of cheques cashed in 30 of the 35 centres was higher in 1961 than in 1960. Payments in Toronto showed the same 7.8 p.c. gain over 1960 as over 1959 and Montreal rose by 7.4 p.c. In comparison, Winnipeg advanced by 10.8 p.c. and Vancouver by 14.5 p.c.

17.—Cheques Cashed at 35 Clearing-House Centres, 1957-61

Clearing-House Centre	1957	1958	1959	1960	1961
	\$'000	\$'000	\$'000	\$'000	\$'000
Atlantic Provinces.....	4,253,883	4,438,573	5,119,612	5,499,101	5,876,687
Halifax.....	1,862,262	1,952,996	2,240,973	2,470,454	2,765,782
Moncton.....	610,987	644,873	687,497	703,300	725,886
Saint John.....	974,095	974,038	1,240,454	1,292,907	1,282,369
St. John's.....	806,539	866,666	950,688	1,032,440	1,102,650
Quebec.....	60,153,466	63,318,152	70,466,038	80,114,230	87,213,839
Montreal.....	54,937,930	57,779,114	64,370,687	73,203,832	78,593,811
Quebec.....	4,075,309	4,994,969	5,515,388	6,285,281	7,912,527
Sherbrooke.....	540,227	544,069	579,963	625,117	707,501
Ontario.....	92,469,365	102,798,608	117,852,356	125,319,946	134,719,363
Brantford.....	587,965	611,026	692,885	688,254	663,833
Chatham.....	552,229	630,883	618,778	655,467	654,195
Cornwall.....	405,239	400,905	430,320	406,526	455,088
Fort William.....	455,892	458,694	483,014	454,425	483,450
Hamilton.....	4,355,968	4,681,253	5,784,746	5,730,223	5,988,206
Kingston.....	449,613	499,922	530,388	520,401	561,700
Kitchener.....	978,856	1,050,153	1,212,701	1,268,458	1,321,571
London.....	2,489,582	2,756,333	3,248,221	3,438,475	3,728,758
Ottawa.....	3,823,158	4,823,537	5,441,744 ¹	5,428,618 ¹	5,923,469 ¹
Peterborough.....	533,262	534,861	597,133	588,320	566,260
St. Catharines.....	795,132	800,629	847,322	861,905	959,735
Sarnia.....	571,840	589,935	610,219	631,965	701,576
Sudbury.....	641,458	613,037	646,385	660,362	711,262
Toronto.....	73,497,633	82,217,905	94,286,069	101,652,499	109,570,868
Windsor.....	2,331,538	2,120,835	2,422,431	2,344,058	2,399,362
Prairie Provinces.....	32,060,427	34,490,157	37,804,428	40,667,168	45,540,898
Brandon.....	222,033	229,039	247,763	255,007	266,028
Calgary.....	8,319,489	7,646,109	8,528,838	8,773,941	10,326,214
Edmonton.....	4,876,157	5,149,339	5,823,946	5,975,975	6,372,384
Lethbridge.....	421,533	441,664	498,757	488,953	501,226
Medicine Hat.....	193,145	201,490	226,408	225,390	243,630
Moose Jaw.....	340,910	392,210	394,040	407,835	379,010
Prince Albert.....	185,407	204,351	229,736	235,304	247,306
Regina.....	3,233,572	3,622,192	3,859,211	4,377,349	4,869,831
Saskatoon.....	849,665	971,924	1,085,023	1,101,592	1,170,588
Winnipeg.....	13,418,516	15,631,849	16,910,586	18,825,822	20,861,681
British Columbia.....	16,621,306	16,244,464	17,626,917	18,018,609	20,433,555
New Westminster.....	742,205	824,007	925,926	863,876	?
Vancouver.....	13,523,017	13,143,566	14,230,065	14,653,833	17,766,910
Victoria.....	2,356,084	2,276,891	2,470,926	2,500,900	2,666,645
Totals.....	295,558,447	221,289,954	218,869,351	269,619,054	293,784,342

¹ Excludes some debits reported in preceding years.

² Included with Vancouver.

Subsection 2.—Government and Other Banking Institutions

There are three distinct types of savings banks in Canada in addition to the savings departments of the chartered banks and of trust and loan companies: (1) the Post Office Savings Bank, in which deposits are a direct obligation of the Government of Canada; (2) Provincial Government savings banking institutions in Ontario and Alberta, where the depositor becomes a direct creditor of the province; and (3) two important savings banks in the Province of Quebec—the Montreal City and District Savings Bank and La Banque d'Économie de Québec—established under federal legislation and reporting monthly to the federal Department of Finance. In addition, co-operative credit unions encourage savings among low-income classes and extend small loans to their members.

Post Office Savings Bank.—The Post Office Savings Bank was established under the Post Office Act of 1867 (SC 1867, c. 10) to “enlarge the facilities now available for the deposit of small savings, to make the Post Office available for that purpose, and to give the direct security of the nation to every depositor for repayment of all money deposited by him together with the interest due thereon”. Branches of the Government of Canada's Savings Bank under the Department of Finance were gradually amalgamated with this Bank over a period of 50 years and the amalgamation was completed in March 1929. Summary financial statistics for the years ended Mar. 31, 1959-62, follow. Figures back to 1868 are available in previous editions of the Year Book.

<i>Item</i>	<i>1959</i>	<i>1960</i>	<i>1961</i>	<i>1962</i>
	\$	\$	\$	\$
Deposits and interest.....	9,432,621	8,010,334	6,898,062	6,466,358
Deposits.....	8,611,890	7,235,391	6,199,420	5,790,429
Interest on deposits.....	820,731	774,943	698,642	675,929
Withdrawals.....	10,172,956	12,793,511	7,757,737	7,614,025
Balance on deposit.....	34,155,617	29,372,461	28,512,786	27,365,119

Provincial Government Savings Banks.—Institutions for the deposit of savings are operated by the Provincial Governments of Ontario and Alberta.

Ontario.—The establishment of the Province of Ontario Savings Office was authorized by the Ontario Legislature at the 1921 Session and the first branches were opened in March 1922. Interest at the rate of $2\frac{1}{4}$ p.c. and $2\frac{3}{4}$ p.c. per annum, compounded half-yearly, is paid on accounts, and deposits are repayable on demand. Total deposits at Mar. 31, 1962 were \$78,830,000 and the number of depositors was approximately 95,000. Twenty-one branches were in operation throughout the province.

Alberta.—Savings deposits are accepted at 52 Provincial Treasury Branches throughout Alberta. The total of these deposits at Mar. 31, 1961 was \$32,068,563, of which \$30,916,147 was payable on demand bearing interest at $2\frac{3}{4}$ p.c. per annum, and \$1,152,416 in Term savings for terms ranging from three months to five years bearing interest at rates from $2\frac{3}{4}$ p.c. to 4 p.c. per annum depending on the term.

Authority was also given for the issue by the Provincial Treasury Department of savings certificates after Jan. 1, 1960 on the following basis: demand certificates bearing interest at $2\frac{3}{4}$ p.c. per annum in denominations of \$10 and up, and five-year certificates bearing interest at $4\frac{1}{2}$ p.c. per annum in denominations of \$25 and up. Nine of these certificates were outstanding as at Mar. 31, 1961.

Quebec Savings Banks.—The Montreal City and District Savings Bank, founded in 1846 and now operating under a charter of 1871 had, at Mar. 31, 1962, a paid-up capital and reserve of \$10,500,000, savings deposits of \$270,338,633 and total liabilities of

\$283,370,627. Total assets amounted to \$283,370,627, including \$146,964,464 of federal, provincial, municipal and other securities. La Banque d'Économie de Québec, founded in 1848 (as La Caisse d'Économie de Notre-Dame de Québec) under the auspices of the St. Vincent de Paul Society, incorporated by Act of the Canadian Legislature in 1855 and given a federal charter by SC 1871, c. 7, had, at Mar. 31, 1962, savings deposits of \$49,041,290 and a paid-up capital and reserve of \$3,000,000. Liabilities amounted to \$58,873,637 and total assets to a like amount.

The following statement shows the combined savings deposits in the Montreal City and District Savings Bank and La Banque d'Économie de Québec for the years ended Mar. 31, 1953-62. Figures back to 1868 are available in previous editions of the Year Book.

<u>Year</u>	<u>Deposits</u>	<u>Year</u>	<u>Deposits</u>
	\$		\$
1953.....	214,122,001	1958.....	266,585,424
1954.....	219,372,081	1959.....	279,626,478
1955.....	237,816,198	1960.....	272,614,366
1956.....	256,526,482	1961.....	296,335,368
1957.....	255,000,311	1962.....	319,379,923

Credit Unions.—Credit unions are savings and loan associations operated by people with a common bond. The bond of association may be membership in a parish, club, lodge or labour union, that of employment in a plant, industry or department, or that of residence in a rural or a well-defined urban community. Figures showing the growing importance of credit unions as savings and loan associations in Canada are given in Table 18. During the ten-year period 1951-60 the number of credit unions chartered increased by 50 p.c.; the number of members in reporting organizations by 124 p.c.; and the assets of reporting organizations by 262 p.c. Membership exceeded 2,500,000 in 1960. Quebec holds the lead in the Canadian credit union movement having more than half the total membership and about 60 p.c. of the total assets of all credit unions in Canada in 1960.

Occupational credit unions are growing at a faster rate than those of other types; they accounted for 35 p.c. of the number of credit unions in Canada in 1960, the same percentage as rural credit unions. In Ontario they represented 68 p.c. of the provincial total in 1960. Occupational credit unions also lead in Alberta and British Columbia. In Manitoba, their number was about the same as that of rural credit unions. In the Atlantic Provinces, Quebec and Saskatchewan the credit unions are predominantly rural.

Savings, which include shares and deposits, reached \$1,195,000,000 in 1960, an increase of 13 p.c. over 1959; the average saving per credit union member was \$471. Loans made to members from these savings amounted to \$482,137,000, at interest rates of 1 p.c. per month or less on the unpaid balance.

There were 27 central credit unions in 1960. The main function of the central credit union is to act as a credit union for credit unions mainly by accepting deposits from them and making loans to them. The centrals facilitate the flow of funds to credit unions that cannot meet the demand for local loans. Some of these central credit unions admit co-operative associations to membership.

The Canadian Co-operative Credit Society serves as a central credit union for provincial centrals and co-operatives all across Canada. In 1960, membership in this national organization included four provincial centrals, four commercial co-operatives, The Co-operative Life Insurance Company and The Co-operative Fire and Casualty Insurance Company

18.—Credit Unions in Canada, 1951-60

Year	Credit Unions Chartered	Credit Unions Reporting	Members ¹	Assets ¹
	No.	No.	No.	\$'000
1951.....	3,121	2,952	1,137,931	358,647
1952.....	3,335	3,080	1,260,435	424,400
1953.....	3,606	3,413	1,434,270	489,266
1954.....	3,920	3,690	1,560,715	552,363
1955.....	4,100	3,899	1,731,328	652,554
1956.....	4,253	3,973	1,870,227	761,256
1957.....	4,389	4,044	2,059,835	852,219
1958.....	4,485	4,156	2,187,494	1,009,363
1959.....	4,570	4,202	2,300,047	1,157,995
1960.....	4,667	4,287	2,544,300	1,299,406

¹ Reporting organizations only.

19.—Summary Statistics of Credit Unions, by Province, 1960

Province	Credit Unions Chartered	Credit Unions Reporting	Members ¹	Assets ¹	Shares ¹	Deposits ¹	Loans to Members during Year ¹	Total Loans since Inception ¹
	No.	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	68	48	3,424	442	372	14	310	4,563
P. E. Island.....	57	45	9,434	1,664	1,351	104	1,017	10,876
Nova Scotia.....	219	201	60,577	15,567	13,617	381	10,925	88,340
New Brunswick.....	163	162	81,680	16,588	14,771	220	7,574	72,216
Quebec								
Desjardins.....	1,227	1,221	1,211,041	687,936	45,053	604,714	126,975	1,440,662
Que. League.....	236	202	72,000	29,253	27,842	—	12,500	83,680
Montreal Fed'n.....	22	22	56,764	50,550	3,464	43,705	10,082	84,052
Ontario.....	1,559	1,316	538,239	219,484	153,246	37,089	155,426	854,358
Manitoba.....	240	236	92,622	42,379	31,483	5,760	30,011	167,707
Saskatchewan.....	278	272	137,012	88,778	66,883	13,921	43,638	259,674
Alberta.....	272	253	77,938	29,216	24,379	1,348	20,116	123,071
British Columbia.....	326	309	203,569	117,549	91,170	13,980	63,563	377,842
Totals.....	4,667	4,287	2,544,300	1,299,406	473,631	721,235	482,137	3,567,041

¹ Reporting organizations only.

Section 4.—Foreign Exchange

The dollar, established officially as the currency of the united provinces of Canada on Jan. 1, 1858, and extended to cover the New Dominion by the Uniform Currency Act of 1870, was defined as 15/73 of the British gold sovereign.* That is, the par rate of exchange between the dollar and the pound sterling was fixed at \$4.866, making the Canadian currency the equivalent of the United States dollar at parity. With minor variations between the import and export gold points representing the cost of shipping gold in either direction, the value of the pound sterling in Canada remained at this level until the outbreak of World War I. The United States dollar, on the other hand, was at a discount in terms of Canadian funds for the first eleven years after Confederation since it was not redeemable in gold from February 1862 to January 1879. On the basis of gold equivalents it would appear that the greatest monthly average discount on the United States dollar after Confederation was approximately 31 p.c., reached in August 1868. From 1879 to 1914 the dollars of the two countries remained at par, varying only within the gold points or under \$2 per thousand.

* The gold sovereign remained the standard for the Canadian dollar until 1910 when the currency was defined in terms of fine gold, making it the exact gold equivalent of the United States dollar. Both British and United States gold coins were, however, legal tender in Canada for this whole period.

On the outbreak of World War I, Canada and Britain suspended the gold standard. For some weeks both the pound and the Canadian dollar rose to a premium in New York. Subsequently both fell back with the pound going to a slight discount. In January 1916 the pound was officially pegged at \$4.76 in American funds. This level was maintained with the help of funds realized by sales of United States securities owned by residents of Britain, by borrowing in the United States and, after the American entry into the War, by the United States Government financing Allied purchases in that country.

From 1915 to the end of 1917, fluctuations in the rate of exchange between the Canadian and United States dollars did not exceed 2 p.c. on either side of parity; the pound was stable in terms of United States dollars during this period. In 1918 the Canadian dollar began to weaken. After the pound was unpegged in 1919, the Canadian dollar declined further and in 1920 it fell to 82 cents in New York with sterling going as low as \$3.18.

By the latter half of 1922 the Canadian dollar had returned practically to par in New York. Despite some further weakness in sterling, the dollar remained close to that level during the next two years, averaging 98.04 and 98.73 cents in terms of the United States dollar in 1923 and 1924, respectively, and fluctuating between a discount of about 3.6 cents and a premium of approximately 0.4 cents. After Britain resumed gold payments in April 1925, the range of fluctuation of the Canadian dollar narrowed further. From Canada's return to the gold standard in the period July 1, 1926 to January 1929, the exchange rate remained within the gold points. The Canadian dollar then went to a slight discount in New York. With the exception of the period July to November 1930, when it went to a small premium in New York, the dollar remained below parity until Britain abandoned the gold standard in September 1931. After that month the pound sterling depreciated sharply and the Canadian dollar followed, reaching lows* in New York of 80.5 cents in December 1931 and 82.6 cents in April 1933.

Following the prohibition of gold exports in the latter month by the United States, the pound and the Canadian dollar strengthened rapidly in terms of American funds. By November 1933, both currencies had reached a premium in New York. Meanwhile in a series of steps beginning with permitting the export of newly mined gold in August 1933, the United States moved toward resumption of the gold standard. As of Feb. 1, 1934, the United States Treasury undertook to buy all gold offered at \$35 per ounce. After that the exchange rate between the Canadian and United States dollars stabilized. Until the outbreak of war in 1939 much of the trading was conducted within one cent of parity although the Canadian dollar in New York did go as high as 103.6 cents (September 1934) and as low as 93.0 cents (September 1938).*

On the outbreak of World War II in September 1939, Britain and other sterling countries introduced foreign exchange control involving fixed buying and selling rates of \$4.02½ and \$4.03½, respectively, in terms of the United States dollar. The Canadian dollar in New York declined until Sept. 16, 1939, when the Government instituted foreign exchange control† in Canada and established fixed buying and selling rates of \$1.10 to \$1.11 for the U.S. dollar and \$4.43 to \$4.47 for sterling. As compared with previous months, the depreciation of the Canadian dollar in terms of United States funds was approximately half as great as that of the pound sterling.

Apart from a minor adjustment on Oct. 15, 1945, when selling rates for U.S. dollars and sterling were lowered to \$1.10½ and \$4.45, respectively, the official rates for the Canadian dollar remained unchanged until July 5, 1946. At that time the rate on the U.S. dollar was restored to par, with buying and selling rates for that currency of \$1.00 to \$1.00½ and for sterling \$1.02 to \$1.04. These rates continued in effect until Sept. 19, 1949 when, following a 30.5-p.c. reduction by Britain in the value of sterling to \$2.80 U.S. (an action which was paralleled in varying degrees by numerous other currencies), Canada returned to the former official rates of \$1.10 and \$1.10½ for United States funds. Sterling was quoted at \$3.07½ and \$3.08½ on the basis of the New York cross rate.

* Noon quotations. Daily highs and lows may have exceeded these rates.

† The operations of the Foreign Exchange Control Board from the time of its establishment to the termination of exchange control in December 1951 are reviewed in the 1941 to 1952-53 editions of the Year Book.

On Sept. 30, 1950, the Minister of Finance announced that official fixed foreign exchange rates which had been in effect at varying levels since 1939 would be withdrawn effective Oct. 2, and that the rate would henceforth be determined in the market for foreign exchange. This policy was carried out within the framework of exchange control until Dec. 14, 1951, at which time the Foreign Exchange Control regulations were revoked by the Governor in Council, terminating the period of exchange control that had prevailed in Canada since 1939. The Foreign Exchange Control Act was repealed in 1952. On May 2, 1962, the Minister of Finance announced that the Canadian dollar was being stabilized at a fixed par value of 92½ cents in terms of United States currency. This action was taken with the concurrence of the International Monetary Fund and, in accordance with the Articles of Agreement of that organization, the Government of Canada undertook to maintain the Canadian exchange rate within a margin of 1 p.c. on either side of the established par value.

The movements of the U.S. dollar in Canadian funds from January 1954 to August 1962 are shown in Table 20.

20.—Price of the United States Dollar in Canada, by Month, 1954-62

NOTE.—Rates published by Bank of Canada. Noon average market rate for business days in period.

(Canadian cents per U.S. dollar)

Month	1954	1955	1956	1957	1958	1959	1960	1961	1962
January.....	97.29	96.60	99.87	96.07	98.47	96.69	95.31	99.29	104.50
February.....	96.65	97.69	99.91	95.83	98.10	97.49	95.17	98.96	104.88
March.....	97.08	98.43	99.87	95.61	97.73	96.98	95.09	98.73	104.94
April.....	98.25	98.62	99.68	95.97	97.06	96.35	96.20	98.89	104.98
May.....	98.43	98.59	99.18	95.56	96.69	96.29	97.81	98.75	108.23
June.....	98.13	98.44	98.53	95.32	96.18	95.88	98.23	100.55	108.79
July.....	97.44	98.46	98.18	95.09	96.00	95.74	97.84	103.41	107.89
August.....	97.02	98.51	98.12	94.80	96.46	95.44	96.98	103.15	107.76
September.....	96.97	98.73	97.77	95.92	97.68	95.16	97.25	103.08	..
October.....	96.98	99.53	97.32	96.47	97.07	94.77	97.85	103.03	..
November.....	96.92	99.94	96.44	96.24	96.83	95.03	97.67	103.57	..
December.....	96.80	99.95	96.05	97.74	96.46	95.12	98.24	104.27	..
Annual Average.....	97.32	98.63	98.41	95.88	97.06	95.90	96.97	101.32	..

21.—Canada's Official Holdings of Gold and United States Dollars, as at Dec. 31, 1943-61

NOTE.—Holdings comprise gold, U.S. dollars and short-term securities of the U.S. Government held by the Exchange Fund Account, other government accounts and net holdings of the Bank of Canada.

(Millions of U.S. dollars)

Year	Gold	U.S. Dollars	Total	Year	Gold	U.S. Dollars	Total
1943.....	224.4	425.2	649.6	1953.....	986.1	832.4	1,818.5
1944.....	293.9	608.3	902.2	1954.....	1,072.7	869.9	1,942.6
1945.....	353.9	1,154.1	1,508.0	1955.....	1,133.9	766.9	1,900.8
1946.....	536.0	708.9	1,244.9	1956.....	1,103.3	832.9	1,936.2
1947.....	286.6	215.1	501.7	1957.....	1,100.3	728.0	1,828.3
1948.....	401.3	596.5	997.8	1958.....	1,078.1	861.0	1,939.1
1949.....	486.4	630.7 ¹	1,117.1 ¹	1959.....	959.6 ²	909.6	1,869.2 ²
1950.....	580.0	1,161.5	1,741.5	1960.....	885.3	943.9	1,829.2
1951.....	841.7	936.9	1,778.6	1961.....	946.2	1,109.6	2,055.8
1952.....	885.0	975.2	1,860.2				

¹ Does not include \$18,200,000 in U.S. funds borrowed in the U.S. in August 1949 by the Government of Canada and set aside for the purpose of retiring an equal amount of certain securities payable in U.S. dollars on Feb. 1, 1950.

² On Oct. 1, 1959, \$62,500,000 representing the gold portion of Canada's increased quota was transferred to the International Monetary Fund.

PART II.—MISCELLANEOUS COMMERCIAL FINANCE

Section 1.—Loan and Trust Companies*

Canadian loan and trust companies, registered with either the federal or provincial governments, operate under the Loan and Trust Companies Acts (RSC 1952, c. 170 as amended by SC 1953, c. 5, and SC 1958, c. 35, and SC 1961, c. 51; and RSC 1952, c. 272 as amended by SC 1953, c. 10, and SC 1958, c. 42, and SC 1961, c. 55, respectively) and corresponding provincial legislation.† Although statistics of provincially registered companies are not collected in detail, it is estimated that more than 95 p.c. of the business of such companies is represented in the figures of this Section, so that they may be accepted as fairly inclusive and representative of the volume of business transacted.

The principal function of loan companies is the lending of funds on first-mortgage security, the money thus made available for development purposes being secured mainly by the sale of debentures to the investing public and by savings department deposits. The extent of investments in mortgages by federal and provincial loan companies may be gauged by the following figures: total assets of such companies for the years 1959 and 1960 amounted to \$671,508,632 and \$751,369,090, respectively, which amounts include mortgage loans of \$509,669,369 and \$583,982,535, respectively; thus, the resulting percentages of mortgages to total assets for those years were approximately 76 p.c. and 78 p.c., respectively.

Trust companies act as executors, trustees and administrators under wills or by appointment, as trustees under marriage or other settlements, as agents in the management of the estates of the living, as guardians of minor or incapable persons, as financial agents for municipalities and companies, as transfer agents and registrars for stocks and bond issues, as trustees for bond issues and, where so appointed, as authorized trustees in bankruptcy. Such companies receive deposits for investment but the investing and lending of such deposits and of actual trust funds are restricted by law. The assets of trust companies (not including estates, trust and agency funds, which cannot be regarded as assets in the same sense as company and guaranteed funds) increased from \$154,202,165 in 1928 to \$1,305,789,251 in 1960. In the former year the total of estates, trust and agency funds administered amounted to \$1,077,953,613 and in 1960 to \$7,390,429,637.

A summary of operations of provincial and federal loan and trust companies is given in Table 1. As a result of the nature of the operations of the latter companies, which are intimately connected with the matter of probate, the larger trust companies usually choose to operate under provincial charters. The statistics of Tables 2, 3 and 4 refer to those companies incorporated both by the Government of Canada and by the provinces. Included in the statistics of federal companies are data of loan and trust companies incorporated by Nova Scotia and brought by the laws of that province under the examination of the federal Department of Insurance, as well as data for trust companies in New Brunswick and Manitoba.

* Revised under the direction of the Superintendent of Insurance for Canada, Ottawa.

† An outline of the development of loan and trust companies in Canada from 1811 to 1913 is given in the 1934-35 Year Book, p. 993. The federal laws relating to their operation were revised in 1914.

1.—Operations of Provincial and Federal Loan and Trust Companies, as at Dec. 31, 1959 and 1960

Item	1959			1960		
	Provincial Companies	Federal Companies	Total	Provincial Companies	Federal Companies	Total
	\$	\$	\$	\$	\$	\$
Loan Companies—						
Assets (book values).....	262,715,544	408,793,088	671,508,632	290,728,768	460,640,322	751,369,090
Liabilities to the public.....	192,440,925	363,686,767	556,127,692	223,064,693	413,236,909	636,301,602
Capital paid up.....	20,902,070	18,675,472	39,577,542	24,045,050	18,727,117	42,772,167
Reserve and contingency funds....	41,683,880	25,605,974	67,289,854	30,824,333	27,997,648	58,821,981
Surplus.....	7,688,669	824,875	8,513,544	12,794,692	678,648	13,473,340
Total liabilities to shareholders...	70,274,619	45,106,321	115,380,940	67,664,075	47,403,413	115,067,488
Gross profits realized during year ¹ ..	5,667,238	6,430,605	12,097,843	6,155,722	6,815,970	12,971,692
Trust Companies—						
Assets (book values)—						
Company funds.....	117,135,913	39,702,594	156,838,507	116,836,442	42,503,686	159,340,128
Guaranteed funds.....	660,663,751	261,752,047	922,415,798	820,656,210	325,792,913	1,146,449,123
Totals, Assets.....	777,799,664	301,454,641	1,079,254,305	937,492,652	368,296,599	1,305,789,251
Estates, trust, and agency funds...	5,774,745,286	1,127,767,607	6,902,512,833	6,143,921,379	1,246,508,258	7,390,429,637
Capital paid up.....	31,847,000	17,072,542	48,919,542	33,614,925	17,553,140	51,168,065
Reserve and contingency funds....	53,707,938	18,832,621	72,540,559	54,760,891	21,214,519	75,975,410
Bonds and debentures.....	9,407,808	1,286,231	10,694,039	8,233,876	1,268,791	9,502,667
Surplus.....	10,621,319	4,654,575	15,275,894	11,898,635	5,601,529	17,500,164
Gross profits realized during year ¹ ..						

¹ Profits before income taxes.

2.—Assets and Liabilities of Loan Companies, 1956-60

Item	CHARTERED BY GOVERNMENT OF CANADA ¹				
	1956	1957	1958	1959	1960
	\$	\$	\$	\$	\$
Assets					
Real estate ²	7,196,820	8,176,745	8,503,266	9,568,209	9,995,987
Mortgage loans and agreements of sale.....	227,370,747	245,459,582	269,539,879	312,248,782	360,338,064
Collateral loans.....	180,793	249,551	238,477	1,654,320	295,504
Bonds and debentures.....	36,623,327	39,190,957	51,544,496	50,748,166	57,399,876
Stocks.....	16,246,819	15,907,174	17,894,334	18,437,649	17,841,834
Cash.....	7,015,991	8,578,259	7,382,089	11,596,706	8,782,834
Totals, Assets³.....	296,715,805	320,144,380	358,735,601	408,793,088	460,640,322
Liabilities					
Liabilities to Shareholders—					
Capital paid up.....	17,622,027	17,695,087	18,726,524	18,675,472	18,727,117
Reserves.....	19,271,324	20,527,887	24,020,837	25,605,974	27,997,648
Totals, Liabilities to Shareholders ⁴ ..	38,071,506	39,430,170	43,764,477	45,106,321	47,403,413
Liabilities to the Public—					
Debentures.....	146,839,303	169,507,160	183,237,073	242,286,755	277,599,798
Deposits.....	106,671,012	105,761,097	124,444,060	112,227,274	124,733,566
Totals, Liabilities to the Public ⁵	253,245,799	280,238,094	314,971,124	363,686,767	413,236,909
Totals, Liabilities.....	296,317,305	319,668,264	358,735,601	408,793,088	460,640,322

For footnotes, see end of table.

2.—Assets and Liabilities of Loan Companies, 1956-60—concluded

Item	CHARTERED BY PROVINCES ⁶				
	1956	1957 ⁷	1958	1959	1960
Assets	\$	\$	\$	\$	\$
Real estate ²	986,728	3,438,381	3,086,620	2,593,080	2,424,620
Mortgage loans and agreements of sale.....	104,062,678	175,175,917	187,149,974	197,420,587	223,644,471
Collateral loans.....	1,194,450	3,381,018	2,938,213	2,892,144	2,974,674
Bonds and debentures.....	26,377,850	26,409,535	34,005,594	33,936,518	35,799,773
Stocks.....	3,176,295	6,700,522	7,707,552	11,128,378	12,100,803
Cash.....	3,837,228	8,723,799	6,549,746	7,685,644	4,472,163
Totals, Assets³.....	140,453,366	228,927,416	216,637,900	262,715,544	290,728,768
Liabilities					
Liabilities to Shareholders—					
Capital paid up.....	10,929,428	21,395,380	20,085,710	20,902,070	24,045,050
Reserves.....	18,149,014	38,896,098	39,933,681	41,683,880	30,824,333
Totals, Liabilities to Shareholders⁴.....	34,876,071	68,498,059	68,288,901	70,274,619	67,664,075
Liabilities to the Public—					
Debentures.....	30,139,135	73,586,634	81,935,674	87,454,173	99,559,183
Deposits.....	73,543,730	82,434,034	91,774,807	98,592,261	117,120,690
Totals, Liabilities to the Public⁵.....	105,577,295	160,429,357	178,348,999	192,440,925	223,064,693
Totals, Liabilities.....	140,453,366	228,927,416	216,637,900	262,715,544	290,728,768

¹ Includes companies chartered by the Government of Nova Scotia which, by arrangement, are inspected by the federal Department of Insurance. ² Book value of real estate for company use and other real estate. ³ Includes interest due and accrued and other assets. ⁴ Includes surplus. ⁵ Includes other liabilities to the public. ⁶ Exclusive of Nova Scotia. ⁷ Includes, for the first time, one loan company incorporated under the laws of Quebec.

3.—Assets and Liabilities of Trust Companies, 1956-60

Item	CHARTERED BY GOVERNMENT OF CANADA ¹				
	1956	1957	1958	1959	1960
Assets	\$	\$	\$	\$	\$
Company Funds^{2,3}.....	36,690,878	38,843,072	36,551,294	39,702,594	42,503,686
Real estate ⁴	2,856,671	2,988,961	3,500,377	3,496,168	3,510,871
Mortgage loans and agreements of sale.....	9,399,887	9,514,144	8,678,270	8,609,888	7,914,553
Collateral loans.....	607,486	404,577	293,660	324,523	417,349
Bonds and debentures.....	14,467,349	15,743,144	14,295,122	16,567,028	18,411,140
Stocks.....	5,500,185	5,881,192	5,765,935	6,542,623	6,862,014
Cash.....	2,506,028	2,876,263	3,155,689	2,903,129	4,032,202
Guaranteed Funds^{2,3}.....	170,344,746	176,964,312	238,743,359	261,752,047	325,792,913
Mortgage loans and agreements of sale.....	90,609,596	95,833,151	122,379,881	147,008,172	178,921,263
Collateral loans.....	6,610,968	4,729,770	7,180,379	6,786,105	9,659,284
Bonds and debentures.....	60,310,896	66,029,880	99,188,148	96,526,399	121,867,826
Stocks.....	1,561,094	1,539,685	1,650,340	1,524,926	2,753,835
Cash.....	9,731,317	7,234,502	6,058,157	7,158,607	3,826,020
Liabilities					
Company Funds⁶.....	36,381,834	38,583,249	36,551,294	39,702,594	42,503,686
Capital paid up.....	17,327,010	18,332,563	16,563,308	17,072,542	17,553,140
Reserves.....	11,911,366	13,099,813	16,385,119	18,832,621	21,214,519
Guaranteed Funds—Trust Deposits and Certificates.....	170,344,746	176,964,312	238,743,359	261,752,047	325,792,913

For footnotes, see end of table, p. 1114.

3.—Assets and Liabilities of Trust Companies, 1956-60—concluded

Item	CHARTERED BY PROVINCES ⁵				
	1956	1957	1958	1959	1960
Assets	\$	\$	\$	\$	\$
Company Funds^{1,2}	91,554,381	97,258,395	106,914,805	117,135,913	116,836,442
Real estate ⁴	8,763,967	11,735,804	15,173,335	16,810,602	12,960,356
Mortgage loans and agreements of sale	12,812,273	10,330,834	9,770,939	9,674,177	9,571,288
Collateral loans	11,217,620	12,145,388	12,896,627	14,546,216	12,803,895
Bonds and debentures	24,123,965	25,342,514	24,235,427	24,584,011	26,406,676
Stocks	24,905,523	29,161,353	31,922,199	37,574,200	40,189,275
Cash	4,662,121	3,222,485	6,673,663	6,928,724	6,465,350
Guaranteed Funds²	446,448,674	472,678,645	588,188,712	660,663,751	820,656,210
Mortgage loans and agreements of sale	155,096,475	159,294,108	202,195,999	243,457,590	277,110,007
Collateral loans	19,823,245	29,845,537	41,652,942	38,379,063	37,858,967
Bonds and debentures	238,455,688	253,111,774	301,913,159	325,946,836	443,027,864
Stocks	2,212,005	1,911,365	2,597,947	2,846,691	2,752,126
Cash	28,037,961	25,235,015	36,316,995	45,666,001	52,660,881
Liabilities					
Company Funds⁴	91,554,381	97,258,395	106,914,805	117,135,913	116,836,442
Capital paid up	30,901,805	31,600,360	31,724,725	31,847,000	33,614,925
Reserves	36,661,034	39,320,428	44,356,427	53,707,938	54,760,891
Guaranteed Funds—Trust Deposits and Certificates	446,448,674	472,678,645	588,188,712	660,663,751	820,656,210

¹ Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba, which, by arrangement, are inspected by the federal Department of Insurance. ² Includes other assets. ³ Includes interest due and accrued. ⁴ Book value of real estate for company use and other real estate. ⁵ Includes other company fund liabilities. ⁶ Chartered by all provinces except Nova Scotia, New Brunswick and Manitoba (see text, p. 1111).

4.—Estates, Trust and Agency Funds of Trust Companies, Chartered by or Supervised by the Federal Government and by Provincial Governments, as at Dec. 31, 1951-60

Year	Federal Companies ¹	Provincial Companies ²	Total	Year	Federal Companies ¹	Provincial Companies ²	Total
	\$	\$	\$		\$	\$	\$
1951	543,983,754	3,282,558,573	3,826,542,327	1956	815,367,349	4,318,560,879	5,133,928,228
1952	588,550,279	3,383,650,088	3,972,200,367	1957	886,560,559	4,695,817,867	5,582,378,426
1953	631,231,540	3,470,781,614	4,102,013,154	1958	990,078,160	5,328,920,074	6,318,998,234
1954	663,520,956	3,734,874,516	4,398,395,472	1959	1,127,767,607	5,774,745,226	6,902,512,833
1955	734,670,479	3,985,662,299	4,720,332,778	1960	1,246,508,258	6,143,921,379	7,390,429,637

¹ Includes companies chartered by the Governments of Nova Scotia, New Brunswick and Manitoba which, by arrangement, are inspected by the federal Department of Insurance. ² Excludes provincial companies of Nova Scotia, New Brunswick and Manitoba which are included with federal companies.

Section 2.—Licensed Small Loans Companies and Licensed Money-Lenders*

Licensed small loans companies and licensed money-lenders are subject to the provisions of the Small Loans Act (RSC 1952, c. 251) as amended by c. 46 of the Statutes of 1956, an enactment of the Parliament of Canada regulating personal loans not in excess of \$1,500 made on the security of promissory notes of borrowers. Most of these notes are additionally secured by endorsements or chattel mortgages. The Act permits, in the case of licensed lenders, maximum rates of cost of loan, including charges of every kind, of 2 p.c. per month

* Further details are given in the Department of Insurance report *Small Loans Companies and Money-Lenders* for the year ended Dec. 31, 1960.

on that portion of the unpaid balance of a loan not exceeding \$300, 1 p.c. per month on that portion of the balance exceeding \$300 but not exceeding \$1,000, and one-half of 1 p.c. per month on any remainder of the balance exceeding \$1,000. The maximum rate permitted to be charged by an unlicensed lender is 1 p.c. per month. Prior to Jan. 1, 1957, the scope of the Act extended only to loans of \$500 and under and the maximum rate permitted to be charged by licensed lenders was 2 p.c. per month and by unlicensed lenders 12 p.c. per annum. The small loans companies—five in number—were incorporated by special Acts of the Parliament of Canada, the first such company commencing business in 1928. Money-lenders, of which there are 75, are made up of companies otherwise incorporated and include a few partnerships and individuals. Table 5 gives the combined financial experience of small loans companies and licensed money-lenders for the years 1957-60.

5.—Assets and Liabilities of Small Loans Companies and Money-Lenders, 1957-60

Assets and Liabilities	1957	1958	1959	1960
	\$	\$	\$	\$
Assets	326,549,959	408,581,861	489,458,577	549,397,569
Small loan balances.....	229,199,629	315,827,669	360,019,949	391,548,554
Balances, large loans and other contracts.....	86,534,064	81,597,731	117,019,123	143,809,201
Cash.....	5,287,550	5,334,230	5,422,060	7,136,432
Other.....	5,528,716	5,822,231	6,997,445	6,903,382
Liabilities	326,549,959	408,581,861	489,458,577	549,397,569
Borrowed money.....	258,184,531	326,274,370	398,296,116	446,112,043
Reserves for losses.....	6,766,856	8,454,003	9,536,367	10,966,543
Paid-up capital.....	14,992,722	26,620,278	36,106,703	39,495,327
Surplus paid in by shareholders.....	12,478,628	9,475,379	377,890	390,390
Earned surplus.....	18,184,528	17,877,114	17,999,186	20,107,677
Other.....	15,942,693	19,880,717	27,142,315	32,325,589

The combined companies showed a sizable increase in the amount of business for 1960 as compared with 1959. While the number of small loans made to the public during the year 1960 decreased from 1,097,226 to 1,094,512, or by less than 1 p.c., the amount of such loans rose from \$526,682,817 to \$547,824,471, or by approximately 3 p.c. The average small loan made was approximately \$501 in 1960 compared with \$480 in 1959. At the end of 1960 small loans outstanding numbered 957,965 for an amount of \$391,548,554 or an average of \$409 per loan. These figures compare with 920,747, \$360,019,949 and \$391, respectively, for 1959.

Gross profits of small loans companies and money-lenders before income taxes and before taking into account any increase or decrease in reserves for bad debts, increased from \$24,767,979 in 1959 (\$18,857,377 being the profit on small loans and \$5,910,602 the profit on business other than small loans) to \$28,220,425 in 1960 (\$20,922,425 being the profit on small loans and \$7,298,382 the profit on business other than small loans).

Section 3.—Sales of Canadian Bonds*

Previous editions of the Year Book have traced sales of Canadian bonds to the end of 1960. This review continues a record of new issues placed in 1961 and refers to developments in the first two quarters of 1962.

Excluding all financing of less than one year, the grand totals of new security issues placed amounted to \$5,265,956,355 in 1961 compared with \$4,267,173,888 in 1960. When these totals were broken down into various classifications, they showed the following comparisons: federal and guaranteed financing amounted to \$3,240,430,400 in 1961 compared with \$2,680,048,600 in 1960; provincial and guaranteed financing amounted to

* Prepared by E. C. Gould, Financial Editor, *The Monetary Times*.

\$996,696,931 in 1961 compared with \$616,025,000 in 1960; municipal financing (including parochial and miscellaneous) amounted to \$441,769,524 in 1961 compared with \$472,214,288 in 1960; corporation financing amounted to \$567,059,500 in 1961 compared with \$498,886,000 in 1960. In addition, a total of \$20,000,000 was placed in Canada during 1961 under the category of foreign government financing. This total was entirely represented by a Commonwealth of Australia issue, dated Apr. 15 and having an interest rate of $5\frac{3}{4}$ p.c. With maturity on Apr. 15, 1981, it was offered at \$98.50 to yield 5.88 p.c.

6.—Sales of Canadian Bonds, by Class of Bond and Country of Sale, 1952-61

NOTE.—Figures from 1904 are given in the corresponding table of previous Year Books beginning with the 1933 edition.

(SOURCE: *The Monetary Times*)

Year	CLASS OF BOND					
	Federal ¹	Provincial	Municipal	Parochial and Miscellaneous	Corporation	Total
	\$	\$	\$	\$	\$	\$
1952.....	830,761,100	426,973,000	147,690,940	49,264,100	573,539,000	2,028,228,140
1953.....	1,950,548,900	436,616,900	186,784,460	35,242,605	336,295,800	2,945,488,665
1954.....	3,200,540,900	400,916,000	209,640,778	51,352,886	606,532,800	4,468,983,364
1955.....	1,348,500,000	434,165,000	226,991,573	66,063,850	585,795,900	2,661,516,323
1956.....	1,357,000,000	557,888,000	265,936,167	52,661,700	860,184,400	3,093,670,267
1957.....	2,468,792,850	645,959,500	305,726,988	49,966,700	1,024,604,100	4,495,050,138
1958.....	2,624,534,050	791,271,000	401,426,925	62,081,000	729,255,000	4,608,567,975
1959.....	2,896,050,600	653,001,875	351,009,264	73,804,100	369,025,000	4,342,890,839
1960.....	2,680,048,600 ²	616,025,000	386,894,288	85,320,000	498,886,000	4,267,173,888 ³
1961.....	3,240,430,400	996,696,931	339,254,024	102,515,500	567,059,500	5,245,956,355 ²

Year	COUNTRY OF SALE		
	Canada ¹	United States	Total
	\$	\$	\$
1952.....	1,743,578,115	284,650,025	2,028,228,140
1953.....	2,638,889,450	306,599,215	2,945,488,665
1954.....	4,295,385,364	173,598,000	4,468,983,364
1955.....	2,506,953,323	154,563,000	2,661,516,323
1956.....	2,623,137,285	470,532,982	3,093,670,267
1957.....	3,888,174,038	606,876,100	4,495,050,138
1958.....	4,121,617,354	486,950,621	4,608,567,975
1959.....	3,749,149,758	472,856,431	4,222,006,189
1960 ²	3,970,404,888 ³	283,169,000	4,253,573,888 ³
1961.....	5,084,054,355	181,902,000	5,265,956,355

¹ Excludes treasury bills, deposit certificates and other financing for a term of less than one year and the Canada Conversion Loan of 1958. ² Excluding a total of \$20,000,000 placed in Canada during 1961 under the category of foreign government financing.

³ Total of all financing in Canada and the United States is shown at \$13,600,000 less than the grand total of all financing during the year since this amount was raised elsewhere than in Canada or the United States.

The federal total shown in the above table does not include refunding issues and new financing of less than one year. In that category (at \$6,493,000,000 in 1961 and \$6,490,000,000 in 1960), the greater part of total financing was represented by Treasury Bill sales.

Included in the federal total for 1961 is an amount of \$1,040,430,400 for Series 16, Canada Savings Loan, as reported for subscriptions received to May 7, 1962. This Series was dated Nov. 1, 1961, to mature in ten years on Nov. 1, 1971. The bonds were available in denominations of \$50, \$100, \$500, \$1,000 and \$5,000. A maximum of \$10,000 was allowed per buyer, with payment to be made either at time of purchase or spread over

12 monthly savings plan instalments. Interest rates were payable annually and graduated to provide $4\frac{1}{2}$ p.c. for the first year, $4\frac{1}{2}$ p.c. for each of the next six years and 5 p.c. for each of the remaining three years. These various rates resulted in an average yield of 4.60 p.c. when held to maturity. Bonds could be registered in estate names or in the names of trustees under a will or administration of an estate.

Sales of Canada Savings Loans issued during the postwar period are shown in Table 7.

7.—Sales of Canada Savings Loans, 1946-61

NOTE.—Figures for the issues 1946-60 are for the entire loans, i.e., either to the year-end or to the closing date within the year or in the subsequent year. The figure for Series 16 (1961) is to May 7, 1962 and is subject to revision when complete returns are available.

Series	Applications	Limits per Individual	Total Sales
	No.	\$	\$
Series 1, 1946.....	1,248,444	2,000	535,285,550
Series 2, 1947.....	910,742	1,000	287,733,100
Series 3, 1948.....	862,686	1,000	260,491,150
Series 4, 1949.....	1,015,579	1,000	320,200,000
Series 5, 1950.....	963,048	1,000	285,600,000
Series 6, 1951.....	986,900	5,000	394,642,400
Series 7, 1952.....	982,274	5,000	380,761,100
Series 8, 1953.....	1,267,506	5,000	850,548,900
Series 9, 1954.....	1,175,264	5,000	800,540,900
Series 10, 1955.....	1,180,000	5,000	729,100,000
Series 11, 1956.....	1,242,250	5,000	853,810,150
Series 12, 1957.....	1,293,163	10,000	1,216,711,900
Series 13, 1958.....	1,179,198	10,000	923,697,450
Series 14, 1959.....	1,486,794	20,000	1,536,050,600
Series 15, 1960.....	1,274,058*	10,000	961,048,600*
Series 16, 1961.....	1,359,581	10,000	1,040,430,400

Provincial financing at \$996,696,931 in 1961 comprised direct sales totalling \$492,405,600 and provincial guarantees for utility, municipal and parochial purposes totalling \$504,291,331. Of a comparable total at \$616,025,000 in 1960, the amount of \$250,000,000 represented direct provincial financing and \$366,025,000 was of a guaranteed nature. Direct provincial entries into the bond market during 1961 were as follows:—

Province	Month	Amount	Province	Month	Amount
		\$			\$
Saskatchewan.....	January.....	10,000,000	Saskatchewan.....	June.....	9,000,000
Quebec.....	January.....	50,000,000	Quebec.....	July.....	50,000,000
Newfoundland.....	January.....	5,000,000	Nova Scotia.....	August.....	8,000,000
New Brunswick.....	February.....	10,000,000	Ontario.....	September... 60,000,000	
Saskatchewan.....	February.....	10,000,000	Saskatchewan.....	September... 10,000,000	
Ontario.....	March.....	50,000,000	Prince Edward Island...	September... 4,260,000	
Nova Scotia.....	April.....	10,000,000	Nova Scotia.....	November... 12,000,000	
New Brunswick.....	April.....	10,000,000	New Brunswick.....	November... 7,500,000	
Saskatchewan*.....	April.....	13,829,300	Newfoundland.....	November... 5,000,000	
Manitoba*.....	April.....	40,816,300	Quebec.....	December... 50,000,000	
Quebec.....	May.....	50,000,000			
Nova Scotia.....	May.....	12,000,000			
Newfoundland.....	May.....	5,000,000			
			TOTALS.....		492,405,600

* Provincial Savings Bonds, Series 1.

A new feature in Canadian provincial bond financing came in April of 1961 with the flotation of Savings Bonds, Series 1, by the Provinces of Saskatchewan and Manitoba. The first of these issues (Saskatchewan) was for \$13,829,300, maturing Mar. 15, 1971 and the second (Manitoba) was for \$40,816,300, maturing Apr. 1, 1971. Both issues carried a 5-p.c. interest rate and were offered at par by a syndicate of investment dealers and chartered banks.

In the category of direct municipal financing (exclusive of municipal issues guaranteed by various provinces), the market for new flotations totalled \$441,769,524 in 1961 compared with \$472,214,288 in 1960. Exclusive of loans for parochial and other educational purposes

(at \$102,515,500 in 1961 and \$85,320,000 in 1960), these issues amounted to \$339,254,024 in 1961 and \$386,894,288 in 1960. Among the largest municipal borrowers in 1961 were the Metropolitan Areas of Montreal and Toronto and the Cities of Saskatoon, Winnipeg, Hamilton, Kitchener, London, Ottawa, Montreal and Halifax.

Over the past five years, a fairly stable volume of new bond sales has been recorded for federal, provincial and municipal financing. In contrast, new corporation issues have shown more varied trends, attributable principally to a general slow-down of business activity. In 1961, corporation sales totalled \$567,059,500, an increase over the totals of \$498,886,000 in 1960 and \$369,025,000 in 1959 but a decided decrease from the totals of \$729,255,000 in 1958 and \$1,024,604,100 in 1957.

The largest corporate borrowers during 1961 were The Alberta Gas Trunk Line Company Limited and The Bell Telephone Company of Canada. The Alberta Gas Trunk Line Co. Ltd. entered the market in May of 1961 with an issue of \$67,000,000, 5½ p.c., first mortgage, sinking fund bonds, Series "B", maturing on May 1, 1981. This issue was sold privately in Canada and the United States. The Bell Telephone Company of Canada entered the market in November with an issue of \$40,000,000, first mortgage bonds, Series "V", maturing on Jan. 2, 1982. This issue was offered at 100.25 by a syndicate of dealers.

The total of all new Canadian bond sales financed in the United States amounted to \$181,902,000 in 1961. Following the declining trend over the past five years, it was down from \$283,169,000 in 1960, from \$472,856,431 in 1959, from \$486,950,621 in 1958 and from \$606,876,100 in 1957. Of the total financed in the United States in 1961, \$26,402,000 was for municipal issues and \$155,500,000 was for corporation issues compared with \$110,909,000 and \$80,260,000, respectively, in 1960. In the latter year, an additional amount at \$25,000,000 was for provincial financing and \$67,000,000 was for provincial guaranteed financing in the United States.

During the early part of 1962 (based on developments up to June 30), there were some extremely significant trends on the Canadian bond market. For example, the Provinces of Saskatchewan and Manitoba began issuance of 91-day Treasury Bills; amounts were for \$1,000,000 each with a total outstanding at \$13,000,000. While patterned on similar federal activity, there have been a number of distinctive developments in this provincial Treasury Bill financing. To date, there has been only one weekly 91-day issue (instead of 91-day and 182-day issues) and maturities have been on Wednesdays instead of Fridays. When this study was being prepared, informed opinion suggested that the amount outstanding would soon be increased and other provinces would undertake similar flotations. The general effect should greatly broaden the scope of Canada's short-term money market with increased applications for investor participation.

Another event of major significance for the Canadian bond market came on May 2, 1962, when the international exchange rate for the dollar was fixed at 92½ cents in terms of United States currency. As a result, Canadian borrowers in the United States were automatically assessed increased interest and capital charges. In experiencing these losses, however, it should be realized that certain offsetting factors were involved. Had the money been borrowed in Canada, higher interest rates would have been mandatory at the time of flotation.

While it is most difficult to assess long-term results from the foreign exchange devaluation, it can be expected that Canadian bond sales in the United States will continue to decline. If comparable amounts of new financing are to be undertaken, therefore, the domestic market must be prepared to absorb them. By mid-1962 an encouraging volume of new issues had been received with few indications of any decidedly upward pressures on interest rates.

CHAPTER XXIV.—INSURANCE*

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

Insurance, for the purpose of statistical analysis, is usually classified as life, fire and casualty. Most companies operate under Federal Government registration although some have provincial licences only. Also many fraternal orders and societies are engaged in this kind of business. The special articles relating to insurance that have appeared in previous editions of the Year Book are listed in Part II of Chapter XXVI under the heading "Insurance".

Section 1.—Life Insurance†

Life insurance in force in Canada with companies registered by the Federal Government (exclusive of fraternal benefit societies) amounted to nearly \$44,649,000,000 at the end of 1960, an increase of \$3,775,000,000 during the year. The ratio of gain in business in force expressed as a percentage of the amount in force at the beginning of the same year, which had hovered around 10 p.c. each year during the decade ended in 1955, stood at 14.3 p.c. in 1956, 13.8 p.c. in 1957, 10.3 p.c. in 1958, 12.0 p.c. in 1959 and 9.2 p.c. in 1960.

Year	In Force at Beginning of Year	Increase in Force for the Year	Per- centage Gain
	\$	\$	
1930.....	6,157,000,000	335,000,000	5.4
1935.....	6,221,000,000	38,000,000	0.6
1940.....	6,776,000,000	200,000,000	2.9
1945.....	9,140,000,000	612,000,000	6.7
1950.....	14,409,000,000	1,337,000,000	9.3
1951.....	15,746,000,000	1,490,000,000	9.5
1952.....	17,236,000,000	1,855,000,000	10.8
1953.....	19,091,000,000	2,136,000,000	11.2
1954.....	21,227,000,000	1,908,000,000	9.0
1955.....	23,135,000,000	2,317,000,000	10.0
1956.....	25,452,000,000	3,635,000,000	14.3
1957.....	29,087,000,000	4,000,000,000	13.8
1958.....	33,087,000,000	3,409,000,000	10.3
1959.....	36,496,000,000	4,378,000,000	12.0
1960.....	40,874,000,000	3,775,000,000	9.2

* Material in this Chapter, except as otherwise indicated, has been prepared under the direction of the Superintendent of Insurance for Canada, Ottawa. More detailed data are available in the Annual Reports of the Department of Insurance.

† All the amounts given in the tables of this Section are net amounts after deduction of reinsurance ceded.

Subsection 1.—Summary of Life Insurance in Canada

Tables 1 and 2 summarize insurance premiums, claims, amounts of new policies effected, and amounts of insurance in force on Dec. 31 for the years 1959 and 1960. These data are presented in Table 1 on the basis of the supervising government authorities for the companies and societies concerned, and the same data are presented in Table 2 classified on the basis of nationality of company or society and by supervising government authorities.

1.—Summary of Life Insurance in Canada according to Supervising Government Authority, 1959 and 1960

Year and Supervising Authority	Insurance Premiums	Claims ¹	New Policies Effected	Insurance in Force, Dec. 31
	\$'000	\$'000	\$'000	\$'000
1959				
Federally Registered.....	708,247	227,694	5,750,757	41,513,067
Companies.....	697,741	223,293	5,622,229	40,873,810
Societies.....	10,506	4,401	128,528	639,257
Provincially Licensed Only.....	44,854	14,165	454,087	2,272,885
Within Province of Incorporation—				
Companies.....	33,843	9,630	351,261	1,746,499
Societies.....	3,143	1,927	16,677	143,717
Outside Province of Incorporation—				
Companies.....	5,416	1,224	66,652	251,425
Societies.....	2,452	1,384	19,497	131,244
Totals, 1959.....	753,101	241,859	6,204,844	43,785,952
1960				
Federally Registered.....	740,143	249,820	5,845,429	45,351,332
Companies.....	728,677	245,074	5,692,888	44,648,974
Societies.....	11,466	4,746	152,541	702,358
Provincially Licensed Only.....	50,131	15,820	526,451	2,590,331
Within Province of Incorporation—				
Companies.....	38,080	10,443	405,117	1,990,938
Societies.....	3,101	1,984	21,354	154,356
Outside Province of Incorporation—				
Companies.....	6,406	1,664	79,340	312,961
Societies.....	2,544	1,729	20,640	132,076
Totals, 1960.....	790,274	265,640	6,371,880	47,941,663

¹ Death, disability and maturity under insurance and annuity contracts.

2.—Summary of Life Insurance in Canada, by Nationality of Company or Society, 1959 and 1960

Year and Nationality of Company	Insurance Premiums	Claims ¹	New Policies Effected	Insurance in Force, Dec. 31
	\$'000	\$'000	\$'000	\$'000
1959				
Canadian Companies—				
Federally registered.....	463,605	152,564	3,736,273	27,695,966
Provincially licensed only.....	39,259	10,854	417,913	1,997,924
Canadian Societies—				
Federally registered.....	5,361	2,370	97,138	417,741
Provincially licensed only.....	5,595	3,311	36,174	274,961
British Companies—				
Federally registered.....	29,554	6,048	224,674	1,332,991
Foreign Companies—				
Federally registered.....	204,582	64,681	1,661,282	11,844,853
Foreign Societies—				
Federally registered.....	5,145	2,031	31,390	221,516
Totals, 1959.....	753,101	241,859	6,204,844	43,785,952

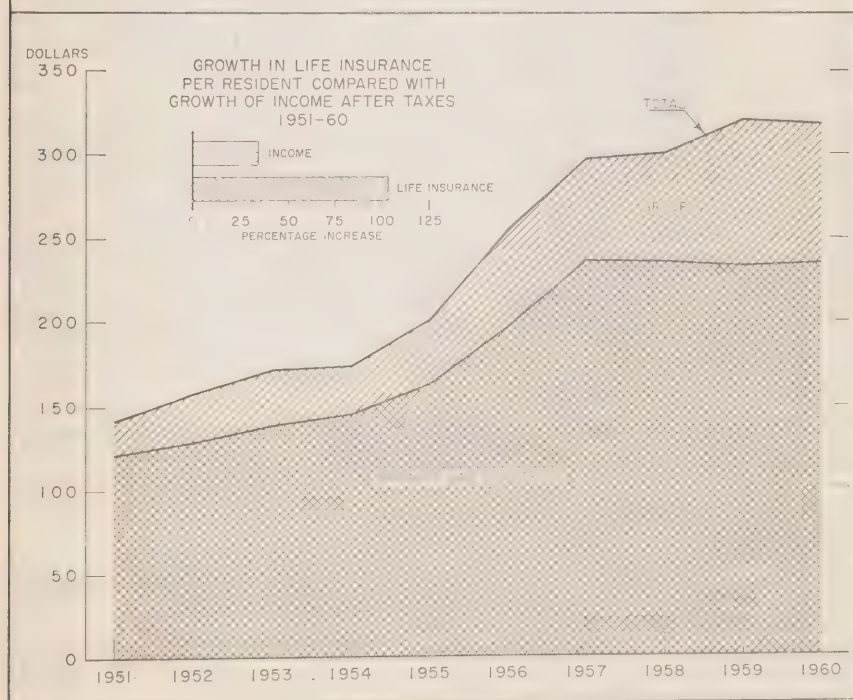
¹ Death, disability and maturity under insurance and annuity contracts.

2.—Summary of Life Insurance in Canada, by Nationality of Company or Society, 1959 and 1960—concluded

Year and Nationality of Company	Insurance Premiums	Claims ¹	New Policies Effectuated	Insurance in Force, Dec. 31
	\$'000	\$'000	\$'000	\$'000
1960				
Canadian Companies—				
Federally registered.....	487,435	167,409	3,887,469	30,418,381
Provincially licensed only.....	44,486	12,107	484,457	2,303,899
Canadian Societies—				
Federally registered.....	5,028	2,664	120,970	472,289
Provincially licensed only.....	5,645	3,713	41,994	285,432
British Companies—				
Federally registered.....	29,563	6,163	301,252	1,554, 44
Foreign Companies—				
Federally registered.....	211,679	71,502	1,504,167	12,675,749
Foreign Societies—				
Federally registered.....	5,438	2,082	31,571	230,069
Totals, 1960.....	790,274	265,640	6,371,880	47,941,663

¹ Death, disability and maturity under insurance and annuity contracts.

NEW LIFE INSURANCE PURCHASED PER RESIDENT, 1951-60



Subsection 2.—Operational Statistics for Life Insurance Transacted in Canada by Companies under Federal Registration

The amount of life insurance in force in Canada has shown an almost continuous advance year by year since the beginning of the record in 1869. The amount per capita of the estimated population has more than doubled since 1950—evidence of the general recognition of the value of life insurance for the adequate protection of dependants against misfortune. At the end of 1960 there were 98 companies federally registered to transact life insurance in Canada, including 36 Canadian companies, 15 British and 47 foreign companies. During the year, 15 companies (six Canadian and nine foreign) became registered and 10 companies (one Canadian, four British and five foreign) ceased to be registered.

The operations analysed in the tables of this Subsection, with the exception of Table 7, include only those companies under federal registration and are exclusive of fraternal organizations and provincial licensees. However, companies under federal registration account for over 93 p.c. of the life insurance in force in Canada.

3.—Life Insurance Effected and in Force in Canada by Companies under Federal Registration, Decennially 1880-1950 and Annually 1951-60

NOTE.—Figures for 1869-1900 are given in the 1938 Year Book, p. 958; for 1901-39 in the 1942 edition, p. 855; and for 1940-49 in the 1957-58 edition, p. 1168. Statistics of fraternal society insurance, excluded here, are given at pp. 1126-1128.

Year	New Insurance Effected during Year	Insurance in Force Dec. 31				Insurance in Force per Capita ¹
		Canadian Companies	British Companies	Foreign Companies	Total	
	\$	\$	\$	\$	\$	\$
1880.....	13,906,887	37,838,518	19,789,863	33,643,745	91,272,126	21.45
1890.....	39,802,956	135,213,990	31,613,730	81,591,847	248,424,567	51.98
1900.....	67,720,115	267,151,086	39,485,344	124,433,416	431,069,846	81.32
1910.....	150,785,305	565,667,110	47,816,775	242,629,174	856,113,059	122.51
1920.....	630,119,900	1,664,348,605	76,883,090	915,793,798	2,657,025,493	310.55
1930.....	854,749,744	4,319,370,209	117,410,860	2,055,502,125	6,492,283,194	636.00
1940.....	599,205,536	4,696,213,977	145,603,299	2,220,505,184	6,975,322,460	612.89
1950.....	1,798,864,211	10,756,249,942	342,878,530	4,646,707,595	15,745,836,067	1,148.33
1951.....	1,990,926,096	11,897,932,326	391,382,883	5,036,207,593	17,235,583,302	1,230.28
1952.....	2,287,264,465	13,985,349,418	443,275,711	5,562,003,368	19,090,628,497	1,320.33
1953.....	2,551,393,073	14,526,740,295	519,137,847	6,181,027,477	21,226,905,619	1,429.90
1954.....	2,656,722,341	15,765,916,390	596,756,619	6,771,905,859	23,134,578,868	1,513.35
1955.....	3,154,670,863	17,401,229,498	691,660,141	7,358,631,886	25,451,571,525	1,621.33
1956.....	4,119,767,664	19,783,194,985	819,968,279	8,484,252,879	29,087,416,143	1,808.83
1957.....	4,336,358,903	22,262,730,280	994,762,620	9,829,563,601	33,087,056,501	1,992.00
1958.....	5,128,711,126	24,560,264,322	1,170,343,106	10,765,171,257	36,495,778,685	2,136.76
1959.....	5,622,229,317	27,695,965,612	1,332,991,403	11,844,852,737	40,873,809,772	2,337.92
1960.....	5,692,887,763	30,418,380,871	1,554,844,168	12,675,749,459	44,648,974,498	2,498.54

¹ Based on official estimates of population; figures for 1952-59 revised since previous publication, in accordance with intercensal estimates based on the 1961 Census.

4.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1958-60

Item	1958	1959	1960
Canadian Companies—			
New policies effected during year..... No.	389,225	375,603	379,785
..... \$	3,345,151,460	3,736,273,098	3,887,468,819
Policies in force Dec. 31..... No.	4,942,324	5,039,384	5,101,467
..... \$	24,560,264,322	27,695,965,612	30,418,380,871
Policies ceased by death or maturity..... No.	46,432	45,514	47,339
..... \$	133,520,891	144,711,281	158,926,397
Insurance premiums..... \$	432,683,366	463,604,526	487,434,347
Claims incurred ¹ \$	141,248,140	152,564,173	167,409,481

¹ Death, disability and maturity under insurance and annuity contracts.

4.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1958-60—concluded

Item	1958	1959	1960
British Companies—			
New policies effected during year.....No.	27,592	25,751	29,196
.....\$	224,776,123	224,673,981	301,251,878
Policies in force Dec. 31.....No.	234,196	242,901	254,683
.....\$	1,170,343,106	1,332,991,403	1,554,844,168
Policies ceased by death or maturity.....No.	2,349	2,438	2,046
.....\$	4,458,013	5,254,612	5,187,138
Insurance premiums.....\$	24,409,973	29,553,907	29,562,928
Claims incurred ¹\$	5,126,582	6,047,985	6,162,832
Foreign Companies—			
New policies effected during year.....No.	308,971	296,040	291,208
.....\$	1,559,786,543	1,661,282,238	1,504,167,066
Policies in force Dec. 31.....No.	4,951,638	4,900,303	4,831,044
.....\$	10,765,171,257	11,844,852,757	12,675,749,459
Policies ceased by death or maturity.....No.	86,964	46,836	58,707
.....\$	64,443,831	59,805,153	67,651,012
Insurance premiums.....\$	191,420,246	204,582,461	211,679,249
Claims incurred ¹\$	65,543,051	64,680,849	71,502,111
All Companies—			
New policies effected during year.....No.	725,788	697,394	700,189
.....\$	5,129,714,126	5,622,229,317	5,692,887,763
Policies in force Dec. 31.....No.	10,128,158	10,182,588	10,187,194
.....\$	36,495,778,685	40,873,809,772	44,648,974,498
Policies ceased by death or maturity.....No.	135,745	94,788	108,092
.....\$	202,422,735	209,771,046	231,764,547
Insurance premiums.....\$	648,513,585	697,740,894	723,676,524
Claims incurred ¹\$	211,917,773	223,293,007	245,074,424

¹ Death, disability and maturity under insurance and annuity contracts.

5.—Ordinary and Industrial Life Insurance Policies Effected and in Force in Canada by Companies under Federal Registration, 1958-60

Year, Type of Policy and Nationality of Company	New Policies Effected			Policies in Force Dec. 31		
	No.	Amount	Average Amount per Policy	No.	Amount	Average Amount per Policy
1958						
		\$	\$		\$	\$
Ordinary Policies—						
Canadian.....	346,191	2,489,780,234	7,192	4,300,816	17,201,843,900	4,000
British.....	27,520	208,059,981	7,560	200,738	1,076,412,792	5,362
Foreign.....	258,655	1,258,245,565	4,865	2,332,816	6,270,470,632	2,688
Industrial Policies—						
Canadian.....	41,333	49,599,902	1,200	629,510	584,765,479	929
British.....	—	—	—	33,228	4,474,557	135
Foreign.....	45,698	21,411,929	469	2,603,677	954,101,714	366
1959						
		\$	\$		\$	\$
Ordinary Policies—						
Canadian.....	301,881	2,594,125,148	7,657	4,405,999	18,700,790,030	4,244
British.....	25,686	213,727,701	8,321	211,343	1,218,946,427	5,768
Foreign.....	251,794	1,239,742,861	4,924	2,419,906	6,861,758,172	2,836
Industrial Policies—						
Canadian.....	37,953	46,422,646	1,223	617,224	584,108,668	946
British.....	—	—	—	31,282	4,084,021	131
Foreign.....	40,230	19,344,873	481	2,463,410	914,368,310	371
1960						
		\$	\$		\$	\$
Ordinary Policies—						
Canadian.....	375,671	2,747,678,852	7,309	4,920,260	20,592,189,650	4,177
British.....	29,090	255,094,937	8,769	224,549	1,392,358,202	6,201
Foreign.....	253,044	1,184,458,668	4,681	2,495,974	7,307,676,471	2,928
Industrial Policies—						
Canadian.....	1,938	1,120,693	1,000	130,456	78,665,888	599
British.....	—	—	—	29,754	3,802,788	128
Foreign.....	34,840	18,218,956	523	2,317,534	871,453,371	376

6.—Group Life Insurance Effected and in Force in Canada by Companies under Federal Registration, 1958-60

Year and Nationality of Company	Effected		In Force Dec. 31			
	Policies	Amount	Policies	Certificates	Amount	Average Amount per Certificate
	No.	\$	No.	No.	\$	\$
1958						
Canadian.....	1,701	805,771,324	11,998	5,677,800	6,773,654,943	1,193
British.....	72	16,716,142	230	19,329	89,455,757	4,828
Foreign.....	4,618	280,129,049	15,145	2,314,709	3,540,598,911	1,530
1959						
Canadian.....	2,796	1,125,725,307	16,161	7,793,897	8,411,057,904	1,079
British.....	65	10,946,280	276	21,677	109,960,955	5,073
Foreign.....	4,016	402,194,504	16,987	2,707,345	4,068,726,275	1,503
1960						
Canadian.....	2,746	1,138,360,835	17,618	9,339,582	9,747,785,180	1,044
British.....	106	46,156,941	380	31,623	158,683,178	5,018
Foreign.....	3,324	301,489,442	17,536	3,259,336	4,496,619,617	1,380

7.—Insurance Death Rates in Canada, 1958-60

Type of Insurer	1958			1959			1960		
	Policies Exposed to Risk	Policies Ter- minated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Ter- minated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Ter- minated by Death	Death Rate per 1,000
	No.	No.		No.	No.		No.	No.	
All companies, ordinary.....	6,740,661	36,450	5.4	6,963,033	36,594	5.3	7,363,722	39,383	5.4
All companies, industrial.....	3,384,562	33,565	9.9	3,204,368	30,405	9.5	2,820,903	29,042	10.3
Fraternal benefit societies.....	500,142	4,252	8.5	512,587	4,240	8.3	503,631	4,154	8.3
Totals	10,625,365	74,267	7.0	10,679,988	71,239	6.7	10,688,256	72,579	6.8

Subsection 3.—Finances of Companies Transacting Life Insurance under Federal Registration

The financial statistics in Tables 8 and 9 relate only to life insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising outside of Canada as well as in Canada.

8.—Total Assets and Liabilities for Life Insurance of Canadian Companies under Federal Registration and Assets and Liabilities in Canada for Life Insurance of British and Foreign Companies under Federal Registration, 1958-60.

Assets and Liabilities	1958	1959	1960
	\$	\$	\$
Canadian Companies			
Total Assets¹	7,583,162,563	8,095,250,934	8,610,477,201
Bonds	3,774,885,731	3,898,190,891	4,061,225,595
Stocks	367,587,149	406,687,199	448,247,750
Mortgage loans on real estate	2,605,408,715	2,865,597,914	3,111,697,104
Agreements of sale of real estate	5,076,560	5,520,045	4,942,226
Real estate	254,748,709	265,296,563	282,892,192
Policy loans	369,961,497	394,550,573	431,676,229
Cash	79,671,736	68,716,852	70,481,884
Investment income, due and accrued	71,232,841	78,630,118	87,000,373
Outstanding insurance premiums and annuity considerations	64,576,155	66,970,578	72,166,766
Shares of company's capital stock (purchased under mutualization plan)	46,721,000	56,344,565	48,574,855
Other assets	13,700,429	15,045,399	20,790,339
Total Liabilities	7,130,219,806	7,606,269,809	8,079,533,701
Actuarial reserve for contracts in force	5,979,494,193	6,391,158,876	6,787,219,229
Amounts on deposit pertaining to contracts	590,890,429	617,130,121	651,158,732
Outstanding claims under contracts	60,410,411	64,216,555	69,521,291
Other liabilities	499,424,773	533,764,257	571,634,449
Surplus	438,012,242	472,979,421	512,877,050
Capital stock paid up	14,930,515	16,001,704	18,066,453
British Companies			
Assets in Canada²	374,366,300	406,111,524	471,782,029
Bonds	211,628,506	222,697,172	272,527,602
Stocks	59,957,983	63,902,020	64,407,916
Mortgage loans on real estate	80,041,848	90,257,450	104,098,014
Real estate	6,037,469	12,526,100	12,562,089
Policy loans	7,303,412	8,322,726	9,542,965
Cash	2,727,569	3,258,817	1,888,192
Investment income, due and accrued	1,316,267	1,458,245	1,721,185
Outstanding insurance premiums and annuity considerations	1,957,702	2,107,701	2,213,653
Other assets	3,395,544	1,581,293	2,820,413
Liabilities in Canada	335,191,504	332,690,764	436,254,716
Actuarial reserve for contracts in force	329,761,180	374,755,633	425,757,729
Outstanding claims under contracts	1,566,622	2,171,721	2,528,986
Other liabilities	3,863,702	5,763,410	7,968,001
Excess of assets over liabilities in Canada	39,174,796	33,420,760	35,527,313
Foreign Companies			
Assets in Canada²	1,432,822,001	1,494,322,700	1,624,049,659
Bonds	1,068,881,648	1,026,881,644	1,124,381,646
Stocks	1,800,000	1,720,000	1,840,000
Mortgage loans on real estate	311,457,795	349,208,596	370,245,594
Real estate	66,617,512	69,750,299	73,930,490
Policy loans	15,297,412	14,671,611	16,921,867
Cash	16,199,473	17,663,800	18,933,999
Investment income, due and accrued	7,834,820	7,966,723	8,066,111
Outstanding insurance premiums and annuity considerations	226,850	303,432	972,972
Other assets			
Liabilities in Canada	1,313,116,206	1,389,744,933	1,458,457,809
Actuarial reserve for contracts in force	1,208,408,136	1,277,754,736	1,362,911,807
Outstanding claims under contracts	13,117,132	14,260,043	16,164,508
Other liabilities	91,590,938	97,710,161	109,351,494
Excess of assets over liabilities in Canada	119,705,795	104,577,767	165,591,850

¹ At book values. The total does not include a reserve, equal to the amount, if any, by which the total book value of bonds, stocks and mortgage loans exceeds the total market value, or amortized value where applicable.

² At market values.

9.—Total Revenue and Expenditure for Life Insurance Transacted by Canadian Companies under Federal Registration and Revenue and Expenditure in Canada for Life Insurance Transacted by British and Foreign Companies under Federal Registration, 1958-60.

Revenue and Expenditure	1958	1959	1960
	\$	\$	\$
Canadian Companies			
Total Revenue	1,235,561,691	1,357,486,095	1,426,390,067
Insurance premiums and annuity considerations.....	875,413,883	965,192,845	995,635,251
Investment income.....	330,305,292	361,341,434	398,865,617
Sundry items.....	29,842,516	30,951,816	31,889,199
Total Expenditure	1,161,389,411	1,278,711,041	1,344,451,702
Claims incurred.....	411,294,197	465,457,119	513,649,249
Normal increase in actuarial reserve.....	380,854,198	401,680,858	390,370,013
Taxes, licences and fees.....	23,803,637	25,195,697	26,827,249
Commissions and general expenses.....	194,798,308	207,371,899	219,999,045
Sundry items.....	44,233,079	61,188,574	64,949,249
Dividends to policyholders.....	97,815,352	106,493,008	116,103,692
Increase in provision for profits to policyholders.....	8,590,640	11,343,886	12,553,205
Analysis of Increase in Surplus—			
Excess of revenue over expenditure.....	74,172,280	78,775,054	81,938,365
Net capital gain on investments.....	8,047,616	5,880,989	4,763,260
Other credits to surplus (net).....	-23,213,832 ¹	-32,262,950 ¹	-25,450,094 ¹
Net increase in special reserves or funds.....	-20,995,405	-8,281,320	-13,147,221
Special increase in actuarial reserve.....	518,441	-6,555,415	-5,831,944
Dividends to shareholders.....	-3,475,198 ²	-2,498,715 ²	-2,249,870 ²
Increase in surplus (policyholders and shareholders).....	35,053,902	35,057,643	40,022,496
British Companies			
Revenue in Canada	72,325,769	82,183,753	89,366,783
Insurance premiums and annuity considerations.....	55,975,767	62,628,136	66,346,296
Investment income.....	15,286,673	18,223,098	21,512,524
Sundry items.....	1,366,329	1,034,519	1,007,963
Expenditure in Canada	31,757,240	40,869,074	41,968,372
Claims incurred.....	16,128,458	21,119,885	22,579,102
Taxes, licences and fees.....	559,422	709,531	783,198
Commissions and general expenses.....	11,163,005	11,751,795	13,713,408
Other expenditure.....	925,034	928,849	919,424
Dividends to policyholders.....	2,981,321	6,359,014	3,973,240
Foreign Companies			
Revenue in Canada	274,161,505	295,402,246	308,304,438
Insurance premiums and annuity considerations.....	200,691,286	214,845,931	219,197,012
Investment income.....	62,010,010	68,404,782	75,944,843
Sundry items.....	11,460,209	12,151,533	13,162,583
Expenditure in Canada	198,137,546	204,967,518	217,634,311
Claims incurred.....	100,177,803	100,706,467	111,265,293
Taxes, licences and fees.....	5,560,088	5,994,497	6,572,120
Commissions and general expenses.....	55,108,125	53,923,595	55,365,523
Other expenditure.....	10,026,174	12,299,928	12,211,518
Dividends to policyholders.....	27,265,356	32,043,031	32,219,857

¹ Includes amounts written off shares purchased under mutualization plan.
than those purchased by the company under mutualization plan.

² Dividends on shares other

Subsection 4.—Life Insurance in Canada Transacted by Fraternal Benefit Societies

In addition to life insurance, some fraternal benefit societies grant other insurance benefits to members, notably sickness benefits, but these are relatively unimportant. Table 10 gives statistics of life insurance in Canada transacted by fraternal benefit societies and Table 11 shows statistics of assets, liabilities, income and expenditure relating to all business of Canadian societies and to the business in Canada of foreign societies. The rates charged by these societies are computed to be sufficient to provide the benefits granted, having

regard for actuarial principles. The benefit funds of each society must be valued annually by a qualified actuary (Fellow, by examination, of the Institute of Actuaries of Great Britain, of the Faculty of Actuaries in Scotland, or of the Society of Actuaries) and a readjustment of rates or benefits must be made, unless the actuary certifies to the solvency of each fund. The first sections of Tables 10 and 11 relate to the 16 Canadian societies registered by the federal Department of Insurance, only one of which does not grant life insurance benefits.

Under an amendment to the Insurance Act, effective Jan. 1, 1920, all foreign fraternal benefit societies were required to obtain authority from the Federal Government prior to transacting business in Canada. However, any such societies which at that date were transacting business under provincial licences, though forbidden to accept new members, were permitted to continue all necessary transactions in respect of insurance already in force. Most of these societies and some foreign societies that had not been licensed previously by the provinces have since obtained federal authority to transact business. At the end of 1960 there were 32 foreign fraternal benefit societies federally registered to transact business in Canada although two of these do not grant life insurance benefits.

10.—Summary of Life Insurance in Canada Transacted by Fraternal Benefit Societies under Federal Registration, 1958-60

Item	1958	1959	1960
Canadian Societies			
Premiums..... \$	4,979,817	5,361,575	6,028,137
Claims incurred..... \$	3,786,652	3,581,052	3,951,619
New certificates effected..... No.	46,543	42,266	39,005
Certificates in force Dec. 31..... No.	80,161,447	97,138,221	120,969,865
..... \$	322,253	329,770	303,899
Certificates ceased by death or maturity..... No.	375,612,122	417,730,965	472,288,184
..... \$	2,888	2,873	2,840
..... \$	2,366,139	2,354,578	2,467,088
Foreign Societies			
Premiums..... \$	4,678,141	5,144,588	5,437,592
Claims incurred..... \$	2,804,850	3,052,558	3,176,578
New certificates effected..... No.	17,988	11,841	12,375
..... \$	20,360,955	31,393,314	31,571,574
Certificates in force Dec. 31..... No.	154,507	157,079	157,487
..... \$	205,735,161	221,515,960	230,069,456
Certificates ceased by death or maturity..... No.	1,731	1,838	1,057
..... \$	1,837,312	1,944,450	2,052,444

11.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1960

Item	Amount	Item	Amount
Canadian Societies¹		Canadian Societies¹—continued	
Assets \$	160,358,642	Liabilities and Surplus \$	160,358,642
Bonds.....	114,315,395	Actuarial reserve.....	149,871,883
Stocks.....	9,047,009	Outstanding claims.....	1,216,545
Mortgage loans on real estate.....	20,077,500	Amounts on deposit.....	305,622
Agreements of sale of real estate.....	454,706	Other.....	21,604,211
Real estate.....	3,682,995	Surplus.....	10,739,771
Certificate loans and liens.....	5,751,393		
Cash.....	1,537,989		
Investment income, due and accrued.....	1,307,811	Revenue	31,140,959
Outstanding premiums, contributions and dues.....	2,355,389	Premiums, contributions and dues.....	26,339,367
Other.....	373,536	Investment income.....	3,867,384
		Other.....	867,384

¹ All funds, business in and out of Canada.

11.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1960— concluded

Item	Amount	Item	Amount
	\$		\$
Canadian Societies¹—concluded		Foreign Societies²—concluded	
Expenditure.....	31,766,735	Real estate.....	952,595
Claims incurred.....	8,278,549	Certificate loans and liens.....	3,503,118
Increase in actuarial reserve.....	8,639,238	Cash.....	1,387,213
Taxes, licences and fees.....	91,758	Investment income, due and accrued.....	704,516
Commissions.....	6,235,108	Outstanding premiums, contributions and dues.....	368,586
General expenses.....	5,451,876	Other.....	1,240
Other.....	1,251,471		
Dividends to members.....	1,580,526	Liabilities.....	47,978,741
Increase in provision for profits to policyholders.....	238,209	Actuarial reserve.....	42,539,959
		Outstanding claims.....	1,074,218
		Other.....	4,364,564
Analysis of Increase in Surplus—		Revenue.....	11,072,960
Excess of revenue over expenditure.....	2,373,324	Premiums, contributions and dues.....	8,106,349
Net capital gain on investments.....	—44,352	Investment income.....	2,459,448
Other credits to surplus (net).....	—39,018	Other.....	507,163
Net increase in special reserves.....	186,854		
Increase in surplus.....	2,476,808	Expenditure.....	6,709,403
		Claims incurred.....	4,364,521
		Taxes, licences and fees.....	45,050
		Commissions.....	782,795
		General expenses.....	525,682
		Other.....	410,323
		Dividends to members.....	581,032
Assets.....	59,000,951		
Bonds.....	48,482,393		
Mortgage loans on real estate.....	3,601,290		

¹ All funds, business in and out of Canada.² All funds, business in Canada only.

Subsection 5.—Life Insurance Effected and in Force Outside Canada by Canadian Companies under Federal Registration

In this Subsection, there are given for the years 1959 and 1960 summary statistics of insurance effected and insurance in force at the end of the year in currencies other than Canadian dollars, as written by Canadian companies under federal registration. The statistics for individual companies are shown in Table 12 and for individual currencies in Table 13. The data given in both of these tables are in terms of Canadian dollars, the conversions from the various foreign currencies having been made at the book rates of exchange used by the various companies. Although these book rates of exchange do not follow the day-to-day fluctuations in the current rates of exchange, they are adjusted when necessary to keep them reasonably in line with the current rates.

Canadian life insurance companies operating under federal registration at Dec. 31, 1960 had life insurance in force amounting to \$12,869,133,074 in countries outside Canada. Insurance in force in currencies other than Canadian dollars amounted to \$12,794,026,168; the difference between these figures is presumably the net amount of business in countries outside Canada transacted in Canadian currency. The business in force in Canada of Canadian companies registered by the Federal Government amounted to \$30,418,380,871 at Dec. 31, 1960, and the total business on the books of these companies, in and out of Canada, amounted to \$43,287,513,945. Thus, about 30 p.c. of the total business in force for Canadian companies registered by the Federal Government was in force in countries outside Canada.

In connection with their business outside Canada, the Canadian life insurance companies registered by the Federal Government held, at the end of 1960, Commonwealth and foreign investments in the amount of \$2,795,873,262.

12.—Life Insurance Effectuated and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Company, 1959 and 1960.

Year and Company	Insurance Effectuated			Insurance in Force Dec. 31		
	Common-wealth Currencies	Foreign Currencies	Total	Common-wealth Currencies	Foreign Currencies	Total
	\$	\$	\$	\$	\$	\$
1959						
Alliance Mutual.....	—	125,636	125,636	—	2,855,213	2,855,213
Canada.....	42,369,575	159,835,982	202,205,557	288,035,324	781,790,874	1,069,826,198
Commercial.....	—	—	—	—	47,568	47,568
Confederation.....	35,789,569	75,748,192	111,537,761	240,795,701	422,331,105	663,126,806
Continental.....	—	—	—	13,877	247,831	261,708
Crown.....	19,346,649	188,454,135	207,800,784	92,010,650	853,475,250	945,485,900
Dominion.....	5,494,749	42,523,319	48,018,068	23,550,716	210,245,730	233,796,446
Dom. of Canada General	195,686	—	195,686	2,157,195	6,000	2,163,195
T. Eaton.....	—	—	—	236,540	3,333	239,873
Equitable.....	—	—	—	—	70,939	70,939
Great-West.....	—	315,640,507	315,640,507	102,942	1,695,992,940	1,696,095,882
Imperial.....	34,706,976	5,062,154	39,769,130	168,178,832	45,226,939	213,405,771
London.....	—	604,216	604,216	—	8,583,336	8,583,336
Manufacturers.....	106,200,183	175,096,019	281,296,202	700,397,327	1,065,616,161	1,766,013,488
Maritime.....	130,083	158,178	288,261	1,702,849	305,733	2,008,582
Monarch.....	—	73,877	73,877	—	301,086	301,086
Montreal.....	—	35,000	35,000	117,124	253,345	370,469
Mutual.....	—	3,631,264	3,631,264	566,101	25,753,286	26,319,387
National.....	6,024,518	5,910,701	11,935,219	25,528,467	15,504,443	41,032,910
North American.....	12,823,546	66,880,828	79,704,374	50,998,954	279,152,627	330,151,581
Northern.....	—	4,148,276	4,148,276	25,750	30,766,959	30,792,709
Sauvegarde.....	—	—	—	—	5,000	5,000
Sun.....	214,357,700	276,176,637	490,534,337	1,300,418,763	3,193,120,585	4,493,539,348
Western.....	—	84,660	84,660	—	223,737	223,737
Totals, 1959	477,439,231	1,320,189,581	1,797,628,815	2,894,837,112	8,631,880,020	11,526,717,132
1960						
Alliance Mutual.....	—	527,746	527,746	—	3,200,710	3,200,710
Canada.....	62,161,183	142,387,727	204,548,910	332,227,506	857,643,528	1,189,871,034
Commercial.....	—	—	—	—	43,674	43,674
Confederation.....	48,802,237	121,103,536	169,905,773	270,472,809	508,341,176	778,813,985
Continental.....	—	—	—	10,297	125,158	135,455
Crown.....	21,569,081	257,885,255	279,454,336	105,837,112	1,065,449,993	1,171,287,105
Dominion.....	9,328,182	45,469,665	54,797,847	31,439,108	242,649,117	274,088,225
Dom. of Canada General	—	—	—	1,945,693	1,000	1,946,693
T. Eaton.....	—	—	—	239,480	3,333	242,813
Equitable.....	—	—	—	—	67,783	67,783
Excelsior.....	—	30,000	30,000	—	67,604	67,604
Great-West.....	—	273,896,189	273,896,189	77,864	1,862,758,978	1,862,836,842
Imperial.....	40,640,667	4,310,191	44,950,858	197,541,761	46,101,774	243,643,535
London.....	—	1,249,858	1,249,858	—	8,947,633	8,947,603
Manufacturers.....	121,913,834	253,283,984	375,197,818	778,167,377	1,231,577,241	2,009,744,618
Maritime.....	100,500	348,967	449,467	1,742,688	702,411	2,445,099
Monarch.....	—	54,787	54,787	—	304,045	304,045
Montreal.....	—	15,000	15,000	107,608	258,939	366,547
Mutual.....	—	3,096,756	3,096,756	563,068	24,109,883	24,672,951
National.....	5,990,260	23,912,885	29,903,145	29,318,754	37,818,843	67,137,597
North American.....	19,435,094	81,768,498	101,203,592	69,672,342	336,867,150	406,539,492
Northern.....	—	5,994,951	5,994,951	25,591	34,200,507	34,226,098
Sauvegarde.....	—	—	—	—	5,000	5,000
Sun.....	227,844,683	260,393,541	488,238,224	1,441,147,687	3,271,998,574	4,713,146,261
Western.....	—	38,315	38,315	—	245,399	245,399
Totals, 1960	557,785,721	1,475,767,851	2,033,553,572	3,260,536,745	9,533,489,423	12,794,026,168

Approximately 71 p.c. of all business in force in currencies other than Canadian is in United States currency and 17 p.c. is in sterling. From a slightly different point of view, approximately 25 p.c. of this business in force is in currencies of Commonwealth countries other than Canada, and 75 p.c. in currencies of foreign countries.

13.—Life Insurance Effectuated and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Currency, 1959 and 1960.

Currency	1959		1960	
	Insurance Effectuated	Insurance in Force	Insurance Effectuated	Insurance in Force
Commonwealth Currencies	477,439,234	2,894,837,112	557,785,721	3,260,536,745
Pounds—				
Sterling.....	282,083,587	1,908,681,955	348,288,230	2,140,828,182
Australia.....	67,200	73,247	—	6,047
British West Indies and Bermuda.....	20,891,146	115,097,742	28,156,381	136,754,484
Cyprus.....	209,656	1,046,106	1,175,124	4,362,428
Rhodesia.....	26,425,249	80,171,296	30,325,450	100,477,439
South Africa.....	101,330,196	495,116,957	87,332,761	544,042,022
Dollars—				
British Honduras.....	—	681,577	—	653,236
British West Indies, Bermuda and British Guiana.....	39,454,235	181,898,332	55,466,156	225,440,284
Hong Kong.....	1,114,085	12,559,216	1,248,345	13,299,842
Malaya.....	3,467,689	29,080,670	4,054,467	30,294,687
Papua—				
New Guinea.....	—	33,795,394	—	31,738,547
Solomon.....	—	6,306,159	—	5,693,218
Tonga.....	—	922,033	—	873,013
Shillings—				
East Africa.....	2,396,191	29,406,428	1,738,807	26,073,316
Foreign Currencies	1,320,189,581	8,631,880,020	1,475,767,851	9,533,489,423
Bahts (Thailand).....	—	54,682	—	32,665
Bolivars (Venezuela).....	2,136,125	24,897,761	14,144,512	35,842,068
Cordobas (Nicaragua).....	—	5,227	—	2,827
Dollars (United States of America).....	1,260,991,624	8,197,105,944	1,403,094,371	9,062,388,705
Francs (France).....	—	4,467	—	666
Francs (Switzerland).....	—	2,080	—	2,080
Guilders (Netherlands).....	—	431,866	—	412,978
Guilders (Netherlands Antilles).....	2,199,262	15,994,053	2,079,317	16,660,090
Kyats (Burma).....	—	157,145	—	108,104
Pesos (Argentina).....	28,509	3,709,440	—	3,484,173
Pesos (Chile).....	—	134	—	7
Pesos (Colombia).....	—	23,940	—	5,920
Pesos (Cuba).....	24,931,116	207,861,650	26,430,367	219,133,351
Pesos (Dominican Republic).....	2,657,378	14,653,477	3,619,919	17,927,178
Pesos (Mexico).....	105,000	5,852,277	68,000	3,855,652
Pesos (Philippines).....	12,350,653	81,212,989	11,430,363	85,295,676
Pounds (Egypt).....	—	16,574,505	—	14,880,192
Pounds (India).....	11,870,873	46,937,821	11,981,395	56,249,229
Pounds (Israel).....	2,919,041	14,867,565	2,919,607	16,760,789
Rupiahs (Indonesia).....	—	1,396,270	—	327,804
Soles (Peru).....	—	133,573	—	116,097
Yen (Japan).....	—	3,154	—	3,172
Totals	1,797,628,815	11,526,717,132	2,033,553,572	12,794,026,168

¹ New francs.

Section 2.—Fire and Casualty Insurance

At the end of 1960 there were 284 companies registered by the Federal Government to transact fire insurance in Canada (87 Canadian, 79 British and 118 foreign). Of these companies, 276 (81 Canadian, 79 British and 116 foreign) were also registered to transact casualty insurance. In addition, 95 companies were registered by the Federal Government to transact casualty insurance but not fire insurance (22 Canadian, 8 British and 65 foreign). Of the companies registered to transact fire and/or casualty insurance, 67 were also registered to transact life insurance; 13 of these were registered for fire, life and casualty insurance and 54 for life and casualty but not fire insurance. It should be noted also that, in addition to the companies registered by the Federal Government to transact casualty insurance, there were 25 registered fraternal benefit societies transacting accident and sickness insurance, of which 22 also transacted life insurance.

As shown in Table 14, some fire and casualty insurance is transacted in Canada by companies that are provincially licensed only. These companies generally confine their operations to the province of incorporation but may be allowed to sell insurance in other provinces. Many of them are mutual organizations transacting only fire insurance on a county, municipal or parish basis.

Table 14 summarizes net premiums written and net claims incurred for the years 1959 and 1960 in the fields of fire insurance and casualty insurance in Canada. These data are presented on the basis of the supervising government authorities for the companies concerned. The table relates to insurance companies only; no data are included with respect to fraternal benefit societies.

14.—Fire and Casualty Insurance Transacted in Canada, 1959 and 1960

Item	1959		1960	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	\$	\$	\$	\$
Fire Insurance				
Federally registered companies.....	196,702,991	96,054,754	200,735,958	100,501,460
Provincial licensees.....	26,898,159	14,725,798	28,949,924	13,464,657
In province by which incorporated.....	21,888,541	12,000,000	25,765,919	12,330,000
Outside province by which incorporated.....	2,669,065	1,658,265	2,985,315	1,224,755
Lloyds, London.....	9,431,630	7,900,105	9,000,107	7,087,491
Totals, Fire.....	233,032,780	118,680,657	238,685,989	121,053,608
Casualty Insurance				
Federally registered companies.....	556,112,462	324,708,480	587,619,299	342,835,402
Provincial licensees.....	57,353,016	31,646,824	57,216,555	30,069,719
In province by which incorporated.....	51,289,393	28,550,816	51,460,464	26,552,308
Outside province by which incorporated.....	6,063,623	3,096,008	6,756,091	3,517,411
Lloyds, London.....	31,679,884	16,927,789	29,085,548	17,037,338
Totals, Casualty.....	645,145,362	373,283,093	673,921,402	389,942,459
Totals, Fire and Casualty.....	878,178,142	491,963,750	912,607,391	510,996,067

Subsection 1.—Fire Insurance Transacted in Canada by Companies under Federal Registration

The net premiums written have increased very rapidly in recent years, having almost doubled since 1949; the net claims incurred have kept pace with this increase.

15.—Fire Insurance Transacted in Canada by Companies under Federal Registration, 1949-60

Year	Net Premiums Written during Year	Net Claims Incurred during Year	Year	Net Premiums Written during Year	Net Claims Incurred during Year
	\$	\$		\$	\$
1949.....	103,955,183	46,567,188	1955.....	146,444,845	77,836,245
1950.....	114,645,199	55,324,245	1956.....	155,508,787	88,088,850
1951.....	124,189,218	62,000,541	1957.....	155,217,317	100,777,194
1952.....	139,771,202	81,221,818	1958.....	177,364,555	88,111,817
1953.....	142,837,834	65,745,201	1959.....	200,735,958	100,501,460
1954.....	148,440,106	70,440,544	1960.....	200,735,958	100,501,460

16.—Fire Insurance in Canada classified by Province and by Nationality of Company under Federal Registration, 1959 and 1960

(Registered reinsurance deducted)

Year and Province or Territory	Canadian Companies		British Companies		Foreign Companies	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	\$	\$	\$	\$	\$	\$
1959						
Newfoundland.....	587,024	481,253	1,456,299	1,004,195	628,618	408,099
Prince Edward Island.....	285,389	101,332	421,116	210,495	191,008	59,559
Nova Scotia.....	2,244,701	1,316,701	3,343,173	2,334,188	1,897,851	1,291,342
New Brunswick.....	1,774,782	878,455	2,594,356	1,303,026	1,582,023	863,442
Quebec.....	20,080,045	9,366,046	24,101,818	10,665,238	22,444,467	9,921,355
Ontario.....	24,541,496	13,343,580	25,513,129	13,992,653	26,917,167	13,507,304
Manitoba.....	3,921,331	2,144,819	2,661,787	1,267,390	2,356,049	1,242,297
Saskatchewan.....	3,124,047	951,543	1,563,383	636,707	1,943,585	877,596
Alberta.....	4,313,753	1,826,122	4,412,773	1,765,951	4,424,967	1,291,094
British Columbia.....	4,978,092	2,122,330	7,433,004	4,362,243	7,949,753	3,427,962
Yukon and Northwest Territories ¹	161,172	44,406	413,540	89,854	194,334	21,293
Canada, 1959	66,318,432	33,207,190	73,913,578	37,601,940	70,534,552	32,911,333
1960						
Newfoundland.....	604,277	281,100	1,278,142	718,667	752,385	303,472
Prince Edward Island.....	225,733	148,800	399,674	240,381	150,827	57,356
Nova Scotia.....	2,064,425	1,008,492	3,146,144	1,697,519	1,595,072	893,916
New Brunswick.....	1,763,905	1,098,034	2,681,178	1,462,824	1,761,478	1,118,654
Quebec.....	20,580,050	9,120,532	24,654,577	12,377,711	22,953,786	11,614,678
Ontario.....	26,887,102	12,475,227	25,482,583	15,002,342	27,793,895	13,744,092
Manitoba.....	4,106,102	2,209,950	2,938,524	1,499,235	2,616,388	1,206,100
Saskatchewan.....	3,019,794	829,063	1,347,276	474,237	1,782,341	673,686
Alberta.....	4,410,241	1,730,495	4,353,821	1,958,999	4,185,445	1,990,750
British Columbia.....	5,044,129	2,905,591	7,436,213	4,644,674	8,098,765	4,395,994
Yukon and Northwest Territories ¹	117,373	29,135	385,016	66,097	166,695	22,309
Canada, 1960	68,528,131	31,536,419	74,103,115	40,142,686	71,557,077	36,021,007

¹ Includes certain 'floaters' business that cannot be apportioned to any one province.

Subsection 2.—Fire Losses

The information in Tables 17 to 20, which deals with the loss of property and life caused by fire, has been summarized from the annual *Statistical Report of Fire Losses in Canada* prepared by the Dominion Fire Commissioner, Department of Public Works. Federal losses not included in these figures in 1960 amounted to \$2,553,339 from 2,015 fires; average federal losses for the period 1951-60 amounted to \$5,021,626 from an annual average of 2,205 fires.

17.—Statistics of Fire Losses, 1951-60

Note.—Figures for 1954-59 are given in the 1947 Year Book, p. 1073, and those for 1947-50 in the 1960 edition, p. 1190. Figures from 1951 may be obtained from the Dominion Fire Commissioner, Department of Public Works.

Year	Fires Reported	Property Loss ¹	Loss per Capita ¹	Deaths by Fire	Year	Fires Reported	Property Loss ¹	Loss per Capita ¹	Deaths by Fire
	No.	\$	\$	No.		No.	\$	\$	No.
1951.....	60,317	76,157,807	5.58	535	1956.....	80,746	106,772,153	6.64	601
1952.....	64,103	80,902,205	5.74	565	1957.....	82,088	133,492,277	8.04	638
1953.....	67,519	84,270,896	5.83	477	1958.....	86,919	120,258,696	7.04	532
1954.....	68,638	91,440,478	6.14	479	1959.....	84,241	124,532,238	7.12	560
1955.....	76,096	102,767,776	6.55	569	1960.....	79,611	129,327,288	7.24	566

¹ Excludes forest fires and Federal Government property losses.² Newfoundland included from 1955.

The provincial property losses for 1957-60 given in Table 18 include both insured and uninsured losses.

18.—Fire Losses, by Province, 1957-60

Province or Territory	1957	1958	1959	1960		
	Property Loss ¹			Fires Reported	Property Loss ¹	Loss per Capita
	\$	\$	\$	No.	\$	\$
Newfoundland.....	5,396,315	4,726,783	2,409,232	594	1,421,354	3.17
Prince Edward Island.....	891,015	1,027,267	839,912	467	740,780	7.19
Nova Scotia.....	3,436,728	3,714,389	4,571,624	2,659	3,661,464	5.04
New Brunswick.....	4,448,217	3,191,935	3,726,872	2,204	4,766,056	8.09
Quebec.....	48,408,380	44,776,995	40,989,820	31,379	40,602,510	7.90
Ontario.....	43,039,433	35,655,759	40,819,944	23,153	42,163,599	6.90
Manitoba.....	4,005,283	3,782,329	4,502,141	2,530	6,080,983	6.71
Saskatchewan.....	2,063,809	3,980,048	3,280,579	2,011	3,132,065	3.42
Alberta.....	6,532,451	6,490,742	7,102,221	4,658	7,630,695	5.91
British Columbia.....	14,534,628	12,702,394	14,859,552	7,822	18,290,383	11.42
Yukon and Northwest Territories.....	336,018	210,025	1,430,341	134	837,399	23.26
Canada.....	133,492,277	120,258,696	124,532,238	79,611	129,327,288	7.24

¹ Excludes forest fires and Federal Government property losses.

19.—Fire Losses, by Type of Property, 1958-60

Type of Property	1958		1959		1960	
	Fires Reported	Property Loss ^{1,2}	Fires Reported	Property Loss ¹	Fires Reported	Property Loss ^{1,2}
	No.	\$	No.	\$	No.	\$
Residential.....	66,484	27,797,073	63,204	28,654,218	59,079	29,674,618
Mercantile.....	8,480	51,180,929	6,553	35,408,540	6,210	37,059,794
Farm.....	5,141	10,165,959	5,906	11,926,439	5,383	10,577,827
Manufacturing.....	1,473	9,754,931	1,703	17,490,756	1,656	21,976,807
Institutional and assembly.....	1,016	6,287,605	1,050	8,143,459	1,076	6,564,462
Miscellaneous.....	4,345	12,823,916	5,735	22,908,826	6,207	22,052,926
Totals.....	86,919	120,258,696	84,241	124,532,238	79,611	129,327,288

¹ Excludes forest fires and Federal Government property losses.² Addition not accurate; breakdown for Newfoundland not complete.

20.—Value of Property Loss, by Reported Cause of Fire, 1958-60

Reported Cause	1958		1959		1960	
	Fires Reported	Property Loss ¹	Fires Reported	Property Loss ¹	Fires Reported	Property Loss ¹
	No.	\$	No.	\$	No.	\$
Smokers' carelessness.....	36,052	5,656,205	34,028	5,914,818	31,037	6,559,352
Stoves, furnaces, boilers and smoke pipes.....	7,546	13,887,770	7,221	13,805,375	7,652	14,016,111
Electrical wiring and appliances.....	1,764	1,267,018	1,484	1,455,764	1,322	1,025,489
Machines.....	1,016	6,287,605	1,050	8,143,459	1,076	6,564,462
Defective and overheated chimneys and flues.....	1,764	1,267,018	1,484	1,455,764	1,322	1,025,489
Hot ashes, coals and open fires.....	1,764	1,267,018	1,484	1,455,764	1,322	1,025,489
Petroleum and gas.....	1,016	6,287,605	1,050	8,143,459	1,076	6,564,462
Lights other than.....	1,016	6,287,605	1,050	8,143,459	1,076	6,564,462
Lightning.....	557	497,647	442	710,105	412	572,361
Sparks on roofs.....	557	497,647	442	710,105	412	572,361
Exposure fires.....	557	497,647	442	710,105	412	572,361
Spontaneous ignition.....	557	497,647	442	710,105	412	572,361
Inadvertence.....	557	497,647	442	710,105	412	572,361
Miscellaneous known causes (explosions, fireworks, friction, hot grease or metal, steam, hot water pipes, etc.).....	11,758	63,501,818	12,041	64,640,790	11,513	68,466,672
Unknown.....	11,758	63,501,818	12,041	64,640,790	11,513	68,466,672
Totals.....	86,919	120,258,696	84,241	124,532,238	79,611	129,327,288

¹ Excludes forest fires and Federal Government property losses.

Subsection 3.—Casualty Insurance Transacted in Canada by Companies under Federal Registration

The various classes of casualty insurance are shown in Table 21. These figures relate only to companies registered by the Federal Government.

21.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred in Canada, 1960

NOTE.—Excluding marine insurance for which a certificate of registration is not required. Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies.

Class of Business	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	\$	\$	\$	\$	\$	\$
Accident—						
Personal.....	3,422,071	2,281,832	5,721,996	11,425,899	11,097,917	4,573,027
Public liability.....	11,711,796	9,973,490	10,499,238	32,120,424	29,258,533	15,071,424
Employers' liability.....	2,192,092	2,610,281	1,334,069	6,136,413	5,829,881	2,882,311
Combined accident and sickness.....	72,345,231	1,542,091	93,877,017	167,764,339	167,681,425	120,097,361
Aircraft.....	292,138	2,418,034	1,856,290	4,566,462	4,374,845	1,571,510
Automobile.....	125,609,213	81,737,163	90,688,292	277,995,668	278,600,562	161,276,447
Boiler—						
Boiler.....	2,871,249	739,881	1,466,673	5,077,803	4,414,242	336,078
Machinery.....	1,415,486	288,053	1,172,901	2,826,340	2,605,368	1,012,839
Credit.....	143,584	—	782,135	925,719	873,280	524,911
Earthquake.....	6,963	25,227	20,461	52,651	36,135	—
Explosion.....	6	46	622	674	2,090	1
Forgery.....	57,862	18,363	13,266	89,491	90,629	—31,846
Guarantee—						
Fidelity.....	1,602,779	866,378	1,539,887	4,009,044	3,937,852	946,444
Surety.....	3,799,380	781,611	2,496,422	7,077,413	6,878,631	1,649,489
Mail.....	459,969	430,999	3,454,180	4,345,148	4,344,168	1,872,723
Infant transportation.....	1,197,902	1,588,068	3,647,708	6,433,678	6,350,558	2,602,259
Livestock.....	25	57,263	113,142	170,430	157,371	73,080
Personal property.....	9,552,805	14,022,478	19,018,185	42,593,468	40,092,399	21,337,344
Plate glass.....	1,163,414	972,893	778,653	2,914,960	2,545,232	1,392,247
Real property.....	231,092	850,006	567,169	1,648,267	1,439,911	887,131
Sickness.....	314,695	553,552	1,099,373	1,967,620	1,931,020	765,085
Sprinkler leakage.....	33	426	762	1,221	1,300	3,154
Theft.....	2,723,141	2,061,231	2,525,307	7,309,679	6,956,306	3,954,764
Title.....	—	—	18,495	18,495	16,741	—
Water damage.....	—	—	540	540	260	—
Weather.....	869	85	12,909	13,863	14,643	4,613
Windstorm.....	97,916	980	34,694	133,590	150,476	33,012
Totals.....	241,202,682	103,746,341	242,670,276	587,619,299	579,681,825	342,835,402

Subsection 4.—Finances of Companies Transacting Fire and Casualty Insurance under Federal Registration

The financial statistics of Tables 22 to 24 relate to fire and casualty insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising outside of Canada as well as in Canada.

22.—Total Assets for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Assets in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1958-60.

Assets	1958	1959	1960
	\$	\$	\$
Canadian Companies¹ (In and Out of Canada)			
Real estate.....	10,989,616	11,660,494	14,685,544
Mortgage loans and agreements of sale.....	8,300,000	8,300,000	8,300,000
Bonds, debentures and stocks.....	34,167,834	34,290,860	35,682,171
Agents' balances and premiums outstanding.....	33,657,834	34,290,860	35,682,171
Cash.....	2,190,000	2,190,000	4,140,000
Interest, dividends and rents, due and accrued.....	27,496,777	27,185,645	25,206,882
Other assets.....			
Totals, Assets of Canadian Companies	141,691,893	148,614,820	147,395,449
British Companies (In Canada)			
Real estate.....	2,923,560	3,054,965	2,940,706
Mortgage loans and agreements of sale.....	1,538,221	1,647,452	1,499,652
Bonds, debentures and stocks.....	12,952,856	13,025,688	14,167,723
Agents' balances and premiums outstanding.....	12,952,856	13,025,688	14,167,723
Cash.....	1,479,167	1,607,808	2,144,410
Interest, dividends and rents, due and accrued.....	4,826,424	6,379,144	7,440,158
Other assets in Canada.....			
Totals, Assets of British Companies (In Canada)	371,536,512	291,615,052	316,984,321
Foreign Companies (In Canada)			
Real estate.....	4,480,908	4,331,023	4,239,149
Mortgage loans and agreements of sale.....	4,331,023	4,331,023	4,239,149
Bonds, debentures and stocks.....	24,956,406	26,870,696	28,281,262
Agents' balances and premiums outstanding.....	24,956,406	26,870,696	28,281,262
Cash.....	5,335,479	6,092,333	6,656,599
Interest, dividends and rents, due and accrued.....	5,335,479	6,092,333	6,656,599
Other assets in Canada.....			
Totals, Assets of Foreign Companies (In Canada)	377,351,895	291,333,969	353,139,989

¹ Includes marine insurance.

23.—Total Liabilities for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Liabilities in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1958-60.

Liabilities	1958	1959	1960
	\$	\$	\$
Canadian Companies¹ (In and Out of Canada)			
Reserve for unsettled claims.....	147,684,121	147,684,121	147,684,121
Reserve for unearned premiums.....	3,217,642	3,759,071	4,432,166
Other policy reserves.....	67,777,284	67,777,284	67,777,284
Sundry items.....	18,388,500	18,388,500	18,388,500
Investment contingency or general reserve funds.....			
Totals, Liabilities of Canadian Companies	301,654,560	329,847,880	369,178,717
Capital stock paid.....	36,084,380	37,283,692	39,800,384
Amounts transferred from other funds.....	3,217,642	3,759,071	4,432,166
Surplus.....	106,151,971	116,311,777	125,187,250
	451,671,893	482,614,820	547,299,449

¹ Includes marine insurance.

23.—Total Liabilities for Fire and Casualty Insurance of Canadian Companies under Federal Registration and Liabilities in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1958-60—concluded.

Liabilities	1958	1959	1960
	\$	\$	\$
British Companies (In Canada)			
Reserve for unsettled claims.....	63,131,240	66,686,958	74,601,018
Reserve of unearned premiums.....	98,352,621	105,090,796	106,847,239
Other policy reserves.....	1,640,062	1,784,280	1,803,029
Sundry items.....	13,999,095	18,668,704	15,725,395
Totals, Liabilities of British Companies (in Canada)	177,123,018	192,230,738	198,976,681
Excess of assets over liabilities in Canada.....	94,417,514	102,414,314	117,107,640
Foreign Companies (In Canada)			
Reserve for unsettled claims.....	82,085,798	87,574,582	98,677,268
Reserve of unearned premiums.....	126,034,285	139,098,015	147,331,762
Other policy reserves.....	10,294,614	12,654,893	13,942,772
Sundry items.....	22,354,260	23,564,004	28,328,797
Totals, Liabilities of Foreign Companies (in Canada)	240,768,957	262,891,494	288,280,599
Excess of assets over liabilities in Canada.....	131,712,846	128,443,466	164,849,390

24.—Profit and Loss Account of Canadian Companies and Gain or Loss and Other Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1958-60.

Item	1958	1959	1960
	\$	\$	\$
Profit and Loss Account—Canadian Companies (In and Out of Canada)			
Underwriting Gain.....	-1,740,766	5,597,515	11,808,158
Add: Interest, dividends and rents.....	13,945,041	16,068,222	18,420,668
Received from shareholders.....	1,906,553	3,777,417	4,251,992
Gain in market value of investments.....	2,803,698	-8,803,426	8,914,062
Gain on sale of investments.....	1,461,521	1,007,040	1,310,248
Gains from other sources.....	2,385,218	5,111,817	4,483,051
Deduct: Investments written down.....	380,039	1,444,711	234,129
Dividends to policyholders.....	1,725,482	1,931,104	2,278,764
Income taxes.....	2,211,501	4,630,955	8,920,933
Losses from other sources.....	3,799,925	4,197,826	9,660,299
Dividends to shareholders.....	2,690,335	3,348,270	3,731,384
Net Gain.....	9,933,983	7,205,719	24,362,670
Gain or Loss and Other Income—British Companies (In Canada)			
Underwriting Gain.....	-4,417,433	1,074,888	4,180,420
Deduct: Income taxes.....	334,273	523,366	555,617
Net Gain or Loss.....	-4,751,706	551,522	3,624,803
Other Revenue—			
Interest, dividends and rents.....	6,108,554	7,278,128	8,486,465
Sundry income.....	76,454	28,742	702

24.—Profit and Loss Account of Canadian Companies and Gain or Loss and Other Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1958-60—concluded.

Item	1958	1959	1960
	\$	\$	\$
Gain or Loss and Other Income—Foreign Companies (In Canada)			
Underwriting Gain	3,870,848	10,679,339	18,723,696
Deduct: Dividends to policyholders and others.....	3,383,470	3,613,834	5,105,842
Income taxes.....	1,398,953	3,025,987	5,392,510
Net Gain or Loss	—911,575	4,039,518	8,225,344
Other Revenue—			
Interest, dividends and rents.....	10,476,421	13,557,229	15,830,330
Sundry income.....	321,017	78,181	68,417

Section 3.—Government Insurance

Federal Government Insurance

For more than fifty years the Federal Government has operated an annuity service, instituted to assist Canadians to make provision for old age, this service is described below. In addition, various insurance schemes have been adopted in recent years by the Federal Government or co-operatively by the federal and provincial governments. Information on unemployment insurance, health insurance, veterans insurance, export credits insurance, etc., will be found in the appropriate Chapters on Labour, Health and Welfare, Foreign Trade, etc.

Government Annuities.*—The Government Annuities Act (RSC 1952, c. 132) was passed in 1908 and is administered by the Minister of Labour.

A Canadian Government annuity is a fixed yearly income purchased from and paid by the Government of Canada. The annuity is payable in monthly instalments for life, or for life and guaranteed for a period of years. The minimum annuity is \$10 and the maximum \$1,200 a year or the actuarial equivalent if the annuity is to reduce by the amount of payments under the Old Age Security Act. Annuity contracts may be deferred or immediate. Deferred annuities are purchased by periodic or single premiums. Immediate annuity contracts provide immediate income. Annuities may be arranged to reduce by \$65 a month at age 70 to fit in with payments under the Old Age Security Act.

The property and interest of the annuitant are neither transferable nor attachable. In the event of the death of the annuitant before a deferred annuity vests, all money paid is refunded with interest. Provision is made in the Act for group annuity contracts whereby employers may contract for the purchase of annuities on behalf of their employees, or associations on behalf of their members, the purchase money being derived partly from wages and partly from employer contributions or entirely from employer contributions. Group annuity plans now in effect cover a variety of industries and many municipal corporations throughout Canada. Annuities arising from individual contracts may be taxable in either of two ways: (1) if registered under Sect. 79B of the Income Tax Act for tax exemption on premiums, the annuity is fully taxable, or (2) if not registered the annuity is taxable on the interest portion only. Annuities arising from registered pension plans are fully taxable but the employee and the employer are entitled to tax exemption year by year on their annual contributions to the pension plan.

From Sept. 1, 1908, the date of the inception of the system, to Mar. 31, 1961, the total number of annuity contracts and certificates issued, excluding replacements, was

* Revised in the Government Annuities Branch, Department of Labour, Ottawa.

505,704. On the latter date, 83,480 annuities were being paid amounting to \$45,174,444 annually and 349,900 deferred annuities were being purchased. The net total amount of purchase money received up to Mar. 31, 1961 was \$1,270,359,478.

Up to Mar. 31, 1961, 1,226 corporations, institutions and associations, as compared with 1,223 up to Mar. 31, 1960, had entered into agreements with the Government to purchase annuities. Under these arrangements, 203,940 employees or members were holding certificates for purchase of deferred annuities as compared with 205,201 one year earlier. The number of group certificates issued in the year ended Mar. 31, 1961 was 10,007 as compared with 11,564 for 1959-60.

25.—Individual Annuity Contracts and Certificates Issued and Net Receipts, Years Ended Mar. 31, 1956-61, with Cumulative Totals for 1909-61

Year Ended Mar. 31—	Individual Contracts Issued	Group Certificates Issued	Total Contracts and Certificates Issued	Net Receipts
	No.	No.	No.	\$'000
1909-55.....	162,710	230,522	393,232	906,262
1956.....	6,799	15,672	22,471	69,945
1957.....	5,937	12,476	18,413	64,421
1958.....	6,701	11,236	17,937	62,149
1959.....	5,306	18,043	23,349	63,017
1960.....	4,378	11,564	15,942	56,041
1961.....	4,353	10,007	14,360	48,522
Totals, 1909-61.....	196,184	309,520	505,704	1,270,359

26.—Government Annuity Fund Statements, Years Ended Mar. 31, 1957-61

Item	1957	1958	1959	1960	1961
	\$	\$	\$	\$	\$
Assets					
Fund at beginning of fiscal year.....	930,221,101	989,285,939	1,047,641,226	1,105,825,076	1,156,867,225
Receipts during the year, less payments.....	59,064,838	58,355,287	58,183,850	51,042,149	42,255,704
Fund at end of fiscal year.....	989,285,939	1,047,641,226	1,105,825,076	1,156,867,225	1,199,122,929
Liabilities					
Value of outstanding contracts.....	989,285,939	1,047,641,226	1,105,825,076	1,156,867,225	1,199,122,929
Receipts					
Immediate annuities.....	5,943,037	4,900,533	5,782,225	3,991,755	2,813,068
Deferred annuities.....	58,982,047	57,779,568	57,783,026	52,533,797	46,063,783
Interest on fund.....	36,322,665	38,448,256	40,710,603	42,805,366	44,584,055
Amount transferred to maintain reserve.....	—	1,184,467	187,565	189,340	—
Totals, Receipts.....	101,247,749	102,312,824	104,433,419	99,520,258	93,460,906
Payments					
Payments under vested annuity contracts.....	36,963,652	39,056,390	41,177,423	43,286,202	44,985,028
Return of premiums with interest.....	3,252,738	3,664,920	3,915,022	4,114,357	4,610,426
Return of premiums without interest.....	1,177,408	1,225,048	1,152,124	1,075,438	939,012
Unclaimed annuities transferred to Consolidated Revenue Fund, net.....	29,398	11,179	5,000	2,112	36,311
Surplus transferred to Consolidated Revenue Fund.....	759,715	—	—	—	634,425
Totals, Payments.....	42,182,911	43,957,537	46,249,569	48,478,109	51,205,202

27.—Numbers and Values of Annuity Contracts, as at Mar. 31, 1960 and 1961

Classification	1960			1961		
	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force	Contracts	Amount of Annuities	Value at Mar. 31 of Contracts in Force
	No.	\$	\$	No.	\$	\$
Vested ordinary.....	23,490	10,914,082	11,079,756	40,926	17,810,352	146,483,935
Vested guaranteed.....	22,544	12,982,509	205,062,241	32,623	13,772,985	266,287,421
Vested last survivor.....	2,582	2,229,828	25,331,250	2,781	1,983,993	24,554,061
Vested reducing at age 70...	5,635	5,875,329	42,632,768	6,150	6,604,214	46,780,015
Deferred.....	347,481	1	742,543,140	349,900	1	775,017,497
Totals.....	425,709	43,193,648	1,156,867,225	433,380	45,174,444	1,199,122,929

¹ Undetermined.

Provincial Government Insurance

Saskatchewan.—The Saskatchewan Government Insurance Office, a Crown corporation established by the Saskatchewan Government Insurance Act, 1944, commenced business in May 1945. It deals in all types of insurance other than sickness and life. The aim of the legislation is to provide residents of the province with low-cost insurance designed for their particular needs. Rates are based on loss experience in Saskatchewan only and the surplus is invested, to the extent possible, within the province. Premium income for 1961 amounted to \$8,079,113 and earned surplus to \$248,419. The total amount made available to the Government of Saskatchewan since the beginning of government insurance operations in 1945 to Dec. 31, 1961, was \$4,131,554. Assets at the latter date were \$17,044,723, of which more than \$10,000,000 were invested in bonds and debentures issued by Saskatchewan schools, municipalities and hospitals. Over 600 independent insurance agents sell government insurance throughout the province.

The Automobile Accident Insurance Act, which became effective Apr. 1, 1946, is administered by the Saskatchewan Government Insurance Office. It establishes a compulsory automatic insurance plan designed to provide a reasonable minimum of compensation for losses arising from motor vehicle accidents regardless of fault. It also provides public liability insurance, with limits of \$10,000/\$20,000 for bodily injury and \$3,000 for property damage, as well as comprehensive and collision coverage subject to a \$200 deductible for private passenger cars. Rates vary from \$4 a year for trucks to \$40 for late-model private passenger cars, and also vary for other types of motor vehicles depending on size and usage. From the inception of the Act in 1946 to Dec. 31, 1961, more than \$53,000,000 were paid in claims.

The Saskatchewan Government Insurance Office, under contract with the Saskatchewan Department of Natural Resources, offers insurance to farmers covering damage to unharvested crops by certain wildlife such as ducks, geese, sandhill cranes, deer, elk, bear and antelope.

Information regarding the operation of the Saskatchewan Government Insurance Office or the Automobile Accident Insurance Act may be obtained from the Librarian, The Saskatchewan Government Insurance Office, Regina, Sask.

Alberta.—Provincial government insurance in Alberta, coming within the purview of the Alberta Insurance Act, relates (1) to the Alberta General Insurance Company, in which the entire business of the fire branch of the Alberta Government Insurance Office was vested by the Legislature on Mar. 31, 1948, and (2) to the Life Insurance Company of Alberta, which was constituted on the same date to take over the life branch of the Alberta Government Insurance Office. Each company is administered by a separate

board of directors. The Lieutenant-Governor in Council appoints the members to the respective boards but the charter of the Life Insurance Company of Alberta provides for the election of two policyholder directors. While both companies are Crown corporations, they are not entitled to the usual immunities of the Crown, since they may sue and be sued in any court of competent jurisdiction.

A variety of agencies in Alberta offer forms of prepaid protection corresponding to insurance but the nature of the enabling legislation governing these plans emphasizes the fact that they do not constitute insurance. Because such exemptions are specifically provided by the insurance laws of the province, reference to these plans is necessary only to make it clear that they do not come within the scope of the Alberta Insurance Act. It should be noted that the Alberta Hail Insurance Act is administered by the Provincial Treasurer but none of the provisions of the Alberta Insurance Act apply to the Alberta Hail Insurance Board.

Further information on provincial insurance matters may be obtained from the Superintendent of Insurance, Department of the Provincial Secretary, Edmonton, Alta.

CHAPTER XXV.—DEFENCE OF CANADA

CONSPECTUS

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The interpretation of the symbols used in the tables throughout the Year Book will be found facing p. 1 of this volume.

PART I.—THE ARMED SERVICES AND DEFENCE RESEARCH*

Section 1.—The Department of National Defence

The Minister and Associate Minister of National Defence exercise control over and management of the Canadian Armed Forces, the Defence Research Board and other matters relating to national defence. Under their direction the three Chiefs of Staff are responsible for the control and administration of their respective Services and the Chairman of the Defence Research Board is responsible for research and development in defence matters. The Chairman, Chiefs of Staff Committee is responsible to the Minister for ensuring that all matters of joint defence and defence policy, in their widest sense, are carefully examined and co-ordinated before decisions are made.

The civilian administration of the Department is organized under the Deputy Minister and is constituted on a functional basis. The Deputy Minister maintains a continuing review and control over the financial aspects of operational policy, logistics, and personnel and administration. The Deputy Minister is assisted by an Associate Deputy Minister and four Assistant Deputy Ministers each of whom administers a division of the Deputy Minister's branch responsible for matters of: administration and personnel; construction, engineering and properties, finance, and supply. Also responsible to the Deputy Minister are: the Controller General of Inspection Services, the Judge Advocate General, the Chief Secretary, and the Director of Public Relations.

A number of committees meet at regular intervals to consider and advise on joint issues. These include:—

- (1) **Defence Council.**—Composed of the Minister of National Defence (Chairman), the Associate Minister (Vice-Chairman), the Parliamentary Secretary, the Deputy Minister, the Chairman, Chiefs of Staff Committee, the three Chiefs of Staff, the Chairman, Defence Research Board, and the Associate Deputy Minister; its purpose is to advise the Minister on administrative and other matters.
- (2) **Chiefs of Staff Committee.**—Composed of the Chairman, Chiefs of Staff, the Chiefs of Staff of the three Armed Services and the Chairman, Defence Research Board. The Deputy Minister of National Defence, the Secretary to the Cabinet and the Under Secretary of State for External Affairs attend when required. The purpose of the Committee is to maintain a continuous review of all operational problems; sub-committees consider various aspects of these problems and report to the parent committee.

* Prepared in the Office of the Deputy Minister, Department of National Defence, Ottawa.

- (3) **Personnel Members Committee.**—Composed of the Chief of Naval Personnel, the Adjutant-General, the Air Member for Personnel, the Assistant Deputy Minister (Administration and Personnel), the Assistant Deputy Minister (Finance) and a representative of the Chairman, Defence Research Board. The purpose of the Committee is to examine personnel problems of the three Services with the general aim of achieving uniform personnel policies; sub-committees consider various aspects of personnel problems and report to the parent committee.
- (4) **Principal Supply Officers Committee.**—Composed of the Chief Naval Technical Services, the Quartermaster-General, the Air Member for Technical Services, the Assistant Deputy Minister (Requirements) and a representative of the Chairman, Defence Research Board. The purpose of the Committee is to consider logistical problems; sub-committees consider various aspects of these problems and report to the parent committee.

Defence Supply Committee.—An interdepartmental committee composed of the Deputy Ministers of National Defence and of Defence Production and the senior military and civilian supply officers of the two Departments has been established to review inter-departmental procurement and production problems and consider various policy aspects of the procurement of ammunition, armament, aircraft, etc. Six panels consider various aspects of these problems and report to the parent committee.

Canada-United States Committee on Joint Defence.—Composed of: for Canada, the Secretary of State for External Affairs, the Minister of National Defence and the Minister of Finance; for the United States, the Secretary of State, the Secretary of Defense and the Secretary of the Treasury; together with such appropriate Cabinet Members as either Government may designate from time to time as the need arises.

The function of this Committee is to consult periodically on any matters affecting the joint defence of Canada and the United States; to exchange information and views at the Ministerial level on problems that may arise, with a view to strengthening further the close and intimate co-operation between the two Governments on joint defence matters; and to report to the representative Governments on such discussions in order that consideration may be given to measures deemed appropriate and necessary to improve defence co-operation. The Committee meets when considered necessary by the two Governments. Meetings normally alternate between Canada and the United States with the host country providing the chairman.

Liaison Abroad.—The Chairman, Chiefs of Staff, who is the Canadian military representative in the North Atlantic Treaty Organization, is responsible for co-ordinating all NATO military matters and acts as a military adviser to Canadian NATO delegations. For purposes of liaison and the furtherance of international co-operation in defence, Canada also maintains: (1) the Canadian Joint Staff (London) representing the three Services and the Defence Research Board in Britain, the chairman of which is the principal military adviser to the Canadian High Commissioner in London, the principal military adviser to the Permanent Canadian Delegate to the NATO Council and the Canadian National Military Representative to SHAPE; (2) the Canadian Joint Staff (Washington) representing the three Services and the Defence Research Board in the United States, the chairman of which is the principal military adviser to the Canadian Ambassador in Washington, the Canadian National Liaison Representative to SACLANC Headquarters and the Canadian member of the NATO Military Committee in Permanent Session; and (3) Service Attachés in various countries throughout the world. In addition, a number of defence matters of concern to both Canada and the United States are considered by the Permanent Joint Board on Defence.

Mutual Aid.—Canada's contributions to NATO are outlined on pp. 141-142.

Rates of Pay and Allowances.—The entire pay structure for comparable ranks in the different Services is on a uniform basis. Monthly rates for pay and allowances effective Oct. 1, 1960 are given in Table 1.

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1960

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Pro-gressive Pay		Group Pay for Tradesmen and Specialists								Subsistence Allowance		Ration Allowance	Marriage Allowance	Separated Family's Allowance (personnel not in married quarters and with children)		
				Years in Rank		Group								Personnel not in Receipt of Marriage Allowance					Personnel in Receipt of Marriage Allowance	
				3	6	9	1	2	3	3A	4	4A	\$	\$	\$				\$	
			\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$			
Ordinary Seaman (under 17 years)	Private (recruit under 17 years)	Aircraftman 2 (under 17 years)	56	—	—	—	—	—	—	—	—	—	—	65	—	30	—			
Ordinary Seaman (entry)	Private (recruit)	Aircraftman 2	108	—	—	—	12	30	54	63	72	90	—	65	100	30	30			
Ordinary Seaman (trained)	Private (trained)	Aircraftman 1	115	—	—	—	12	30	54	63	72	90	—	65	100	30	30			
Able Seaman	Private (higher rate)	Leading Aircraftman	134	20	22	—	12	30	54	63	72	90	—	65	100	30	30			
—	Lance-Corporal	—	134	—	—	—	12	30	54	63	72	90	—	65	100	30	30			
Leading Seaman	Corporal	Corporal	187	3	3	3	12	30	54	63	72	90	—	65	100	30	30			
Petty Officer 2	Sergeant	Sergeant	211	5	5	5	12	30	54	63	72	90	—	75	105	30	30			
Petty Officer 1	Staff Sergeant	Flight Sergeant	235	5	5	5	12	30	54	63	72	90	—	85	105	30	30			
Chief Petty Officer 2	Warrant Officer 2	Warrant Officer 2	272	5	5	5	12	30	54	63	72	90	—	85	105	30	30			
Chief Petty Officer 1	Warrant Officer 1	Warrant Officer 1	304	5	5	5	12	30	54	63	72	90	—	95	110	30	30			
ROTC Cadet	ROTC Cadet	ROTC Cadet	63	—	—	—	—	—	—	—	—	—	—	65	—	30	—			

1.—Monthly Rates of Pay and Allowances for the Canadian Armed Forces, Effective Oct. 1, 1960—concluded

Royal Canadian Navy	Canadian Army	Royal Canadian Air Force	Basic Pay	Pro- gressive Pay			Group Pay for Tradesmen and Specialists							Subsistence Allowance		Ration Allow- ance	Mar- riage Allow- ance	Separated Family's Allowance (personnel not in married quarters and with children)		
				Years in Rank			Group							Personnel not in Receipt of Marriage Allowance	Personnel in Receipt of Marriage Allowance			In Receipt of Sub- sistence Allowance	Not in Receipt of Sub- sistence Allowance	
				3	6	9	1	2	3	3A	4	4A								
Midshipman	—	—	\$ 154	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$		
Acting Sub-Lieutenant	Second Lieutenant	Pilot Officer	225	—	—	—	—	—	—	—	—	—	—	—	75	110	30	40	75	110
Sub-Lieutenant	Lieutenant	Flying Officer	321	35	15	—	—	—	—	—	—	—	—	—	75	110	30	40	75	110
Commissioned Officer	Officer commis- sioned from S/Sgt or above	Officer commis- sioned from T/Sgt or above	393	20	20	20	—	—	—	—	—	—	—	—	90	125	30	40	90	125
Lieutenant	Captain	Flight Lieutenant	393	30	30	30	—	—	—	—	—	—	—	—	95	125	30	40	95	125
Lieutenant- Commander	Major	Squadron Leader	510	30	30	30	—	—	—	—	—	—	—	—	113	135	30	40	113	135
Commander	Lieutenant-Colonel	Wing Commander	639	35	35	35	—	—	—	—	—	—	—	—	126	150	30	40	126	150
Captain	Colonel	Group Captain	809	35	35	—	—	—	—	—	—	—	—	—	139	165	30	40	139	165
Commodore	Brigadier	Air Commodore	1,114	—	—	—	—	—	—	—	—	—	—	—	153	180	30	40	153	180
Rear-Admiral	Major-General	Air Vice-Marshal	1,265	—	—	—	—	—	—	—	—	—	—	—	165	195	30	40	165	195

¹ Depending on rank on promotion.

The allowances shown in Table 1 are explained briefly as follows.

Subsistence Allowance.—This allowance is granted whenever rations and quarters are not provided. A married man living with his family uses his subsistence allowance for their maintenance as well as his own.

Ration Allowance.—A ration allowance is granted when quarters are available but rations are not provided. It is not payable concurrently with subsistence allowance.

Marriage Allowance.—The amount of this allowance is \$30 a month for men and \$40 a month for officers, subject to a reduction of \$10 a month where permanent married quarters are occupied or \$2.50 a month where temporary married quarters are occupied. All ranks may draw this allowance upon marriage provided the initial training period has been completed and the age of 21 years has been attained by men and 23 years by officers.

Separated Family's Allowance.—An officer or man while separated from his dependants for any of various reasons (*i.e.*, movement of dependants prohibited, illness of dependants, lack of suitable accommodation), on being moved other than temporarily may be entitled to separated family's allowance at a rate and for a period depending on circumstances (*i.e.*, rank, reason for separation, whether or not he has children, whether or not his family is accommodated in married quarters, whether or not he is provided with quarters and rations). The rates listed are the maximum.

In addition to the above, *Foreign Allowances* of various kinds are granted to officers and men posted for duty outside Canada to compensate for additional living expenses or hardships incurred; these vary with rank, appointment and location. *Isolation Allowances* are granted to officers and men serving at specified isolated posts in Canada at rates depending upon location and circumstances. *Gratuity Allowances and Clothing Credits* are as follows: Officers receive a single payment of \$450 on appointment and Warrant Officers Class I, \$270; men receive a free issue of clothing when they join and thereafter a monthly clothing credit or allowance of \$7, Navy Petty Officer 1st class and above \$8, and women \$8. An *Aircrew Allowance* of \$75 a month is paid to an officer or man undergoing flying training. For qualified aircrew this allowance may be increased to \$150, depending on rank, if filling an appointment requiring active and continuous flying duties and to \$100, depending on rank, for maintaining proficiency. *Submarine Allowance* is granted an officer or man undergoing submarine training or filling an appointment in a submarine; the allowance varies from \$65 to \$115 a month depending on rank. An officer or man actively engaged or undergoing training as a parachutist or on flying or submarine duty and not entitled to aircrew allowance or submarine allowance is paid a *Risk Allowance* at the rate of \$30 a month. *Medical and Dental Officers* are granted extra allowances according to rank.

Subsection 1.—The Royal Canadian Navy

Role and Organization.—The role of the Royal Canadian Navy, in support of Canada's defence policy, is to maintain sea communications, to defend Canada against attack from the sea, to contribute to the collective defence of the NATO area against attack from the sea and to contribute naval forces to the United Nations as may be required. It is substantially an anti-submarine (A/S) role.

The Royal Canadian Navy comes under the central authority of the Chief of the Naval Staff at Naval Headquarters in Ottawa. The Flag Officer Atlantic Coast, at Halifax, N.S., and the Flag Officer Pacific Coast, at Esquimalt, B.C., exercise operational and administrative command of ships and establishments within the Atlantic and Pacific Coast Commands. The Flag Officers also hold the additional appointments of Maritime Commander Atlantic and Maritime Commander Pacific, respectively. As such, each is responsible for anti-submarine operations involving RCN and RCAF forces in his Command. The 21 Naval Divisions of the Royal Canadian Naval Reserve are under the overall command of the Commanding Officer Naval Divisions, with headquarters at Hamilton, Ont. There are naval staffs in London, England, and Washington, D.C., U.S.A., to maintain liaison with the Royal Navy and the United States Navy. As a result of Canada's NATO commitments, officers of the Royal Canadian Navy serve on the staffs of the

Supreme Allied Commander, Atlantic, at Norfolk, Va., in the United States; the Commander-in-Chief, Eastern Atlantic Area, at Northwood in Britain; and the Commander-in-Chief, Western Atlantic Area, at Norfolk, Va. The Flag Officer Atlantic Coast holds the NATO appointment of Commander, Canadian Atlantic Sub-Area.

The strength of the RCN on Mar. 31, 1962, was 21,456 officers, men and women in the regular force and 3,710 in the reserve force.

Operations at Sea, 1961-62.—The Royal Canadian Navy set a peacetime record in 1961-62 by having more ships and men spend more time at sea and steam more miles than in any previous corresponding period. Fifty-eight combatant ships were in commission and more than one-half of the Navy's personnel were serving afloat.

At mid-1962, six destroyer escorts and a 22,000-ton tanker-supply ship were under construction in Canadian shipyards, and the fitting of Variable Depth Sonar and Helicopter platforms in the seven St. Laurent class destroyer escorts had begun. Plans for the construction of eight new general purpose frigates and negotiations with Britain for the purchase of three Oberon class submarines had been announced by the Government.

The Navy took part in 22 national and international exercises in 1961-62, including simultaneous participation in a NATO exercise in the Atlantic and a Commonwealth exercise in the Indian Ocean. Ships of the RCN visited more than a score of countries including Iceland, Ceylon, Ghana, Malaya, Nigeria, Sierra Leone, Thailand, Japan and Burma.

Training.—At the end of 1961, the Navy had approximately 1,100 men taking new-entry training, 1,200 men undergoing other training in the various trade areas, and 441 cadets and 180 officers on courses. The major training establishments of the RCN are HMCS *Cornwallis*, near Digby, N.S.; HMCS *Shearwater*, near Dartmouth, N.S.; HMCS *Stadacona* at Halifax; HMCS *Hochelaga* at LaSalle, Que.; HMCS *Gloucester* near Ottawa; and HMCS *Naden* at Esquimalt, B.C.

Cadets entered under the Regular Officers Training Plan (ROTP) or College Training Plan (CTP) receive most of their early training at the Canadian Services Colleges or a Canadian university while those entered on a short service appointment are trained in HMCS *Venture* at Esquimalt, B.C. All cadets receive practical training with the Fleet at various times of the year.

Men and women entering the RCN receive their basic training at HMCS *Cornwallis*; the courses are normally of 15 weeks duration.

A University Naval Training Division program is conducted to give instruction to university students with the object of providing well-trained junior officers for the RCN Reserve and the RCN. The training period is three years and the cadets are required to complete three winter-training periods, two summer-training periods and certain specified courses. In March 1962, there were 588 UNTD cadets at 26 Canadian universities and colleges. Most of these will receive training during the summer in ships and establishments of the RCN.

Royal Canadian Naval Reserve.—The recruiting and training of officers and men of the Royal Canadian Naval Reserve is conducted mainly through 21 Naval Divisions across Canada under the over-all command of the Commanding Officer Naval Divisions, with headquarters at Hamilton, Ont. Naval Divisions are established in the following centres:—

St. John's, Nfld., HMCS *Cabot*
 Charlottetown, P.E.I., HMCS *Queen Charlotte*
 Halifax, N.S., HMCS *Scotian*
 Saint John, N.B., HMCS *Brunswick*
 Quebec, Que., HMCS *Montcalm*
 Montreal, Que., HMCS *Donnacona*
 Toronto, Ont., HMCS *York*
 Ottawa, Ont., HMCS *Carleton*
 Kingston, Ont., HMCS *Cataraqui*
 Hamilton, Ont., HMCS *Star*

Windsor, Ont., HMCS *Hunter*
 London, Ont., HMCS *Prevost*
 Port Arthur, Ont., HMCS *Griffon*
 Winnipeg, Man., HMCS *Chippawa*
 Regina, Sask., HMCS *Queen*
 Saskatoon, Sask., HMCS *Unicorn*
 Calgary, Alta., HMCS *Tecumseh*
 Edmonton, Alta., HMCS *Nonsuch*
 Vancouver, B.C., HMCS *Discovery*
 Victoria, B.C., HMCS *Malahat*
 Prince Rupert, B.C., HMCS *Chatham*

Naval Divisions, commanded by Reserve officers, provide both basic and specialized training for officers and men of the RCN Reserve. The Great Lakes Training Centre at Hamilton conducts new-entry reserve training afloat during the summer months.

Royal Canadian Sea Cadets.—Royal Canadian Sea Cadets, sponsored by the Navy League of Canada and supported by the RCN, consist of 159 authorized corps. These are divided into seven Sea Cadet areas, supervised by 16 naval officers responsible to the Commanding Officer Naval Divisions. Instruction is carried out by RCSCC officers. Two RCSCC training establishments—*Acadia* on the East Coast and *Quadra* on the West Coast—accommodated officers and cadets for two-week training periods in 1961. In addition, selected Sea Cadets received eight-week training courses at the two establishments. Sea experience was provided for Cadets throughout the year in various types of ships of the RCN. The strength of the Corps was 1,052 Sea Cadet officers and 10,692 Sea Cadets in March 1962.

Subsection 2.—The Canadian Army

Organization.—Army Headquarters at Ottawa is organized into three separate Branches. The General Staff Branch deals with all matters affecting the fighting efficiency of the Army, the Adjutant-General Branch deals with all problems affecting the soldier as an individual and the Quartermaster-General Branch is responsible for supply. The senior appointment at Army Headquarters is the Chief of the General Staff who, through the Heads of the three Branches, directs all activities of the Canadian Army. For command and control, Canada is divided into Commands and Areas with Headquarters as follows:—

<u>Command</u>	<u>Headquarters</u>	<u>Area and Headquarters</u>
Eastern Command.....	Halifax, N.S.....	(1) New Brunswick Area, Fredericton, N.B.
		(2) Newfoundland Area, St. John's, Nfld.
Quebec Command.....	Montreal, Que.....	(3) Eastern Quebec Area, Quebec, Que.
Central Command.....	Oakville, Ont.....	(4) Eastern Ontario Area, Kingston, Ont.
		(5) Central Ontario Area, Oakville, Ont.
		(6) Western Ontario Area, London, Ont.
Western Command.....	Edmonton, Alta.....	(7) British Columbia Area, Vancouver, B.C.
		(8) Alberta Area, Edmonton, Alta.
		(9) Saskatchewan Area, Regina, Sask.
		(10) Manitoba Area, Winnipeg, Man.

The Canadian Army comprises the Canadian Army (Regular) and the Reserves. The Canadian Army (Regular) consists of a field force of four Infantry Brigade Groups, headquarters and administrative, training and logistic support units. One of the Infantry Brigade Groups is in Europe with the NATO Force and is under command of the Supreme Allied Commander in Europe. The Reserves include the Canadian Army (Militia), the Regular Reserve, the Supplementary Reserve, the Canadian Officers' Training Corps, the Cadet Services of Canada and the Reserve Militia. Additional to but not an integral part of the Canadian Army are the Services Colleges, officially authorized cadet corps, rifle associations and clubs.

The strength of the Canadian Army (Regular) at Mar. 31, 1962 was 51,855 officers and men and the strength of the Canadian Army (Militia) was 82,614, including personnel taking the special militia training courses.

Operations in 1961.—In fulfilment of military obligations under the North Atlantic Treaty, Canada has continued to provide ground forces for the defence of Western Europe. The 4th Canadian Infantry Brigade Group, the major units of which are the 8th Canadian Hussars (Princess Louise's), the 3rd Regiment Royal Canadian Horse Artillery, No. 1 Surface-to-Surface Missile Battery, the 1st Battalion, The Canadian Guards, the 1st Battalion, The Queen's Own Rifles of Canada, and the 1st Battalion, The Black Watch (Royal Highland Regiment) of Canada, constituted the Canadian Army contribution to NATO at the end of the year. The Headquarters of the Brigade Group is at Soest, and married quarters are located in the vicinity of Soest, Werl, Hemer and Iserlohn.

The Canadian Army continued to provide forces in support of United Nations operations as follows. (1) A force of approximately 870 officers and men forms a part of the United Nations Emergency Force in the Middle East; its tasks are the patrolling of a sector of the Egypt-Israel International Frontier, the provision of engineer services, communications, stores, transport and workshop services, and postal facilities for the Force. (2) In the Congo, 57 Canadian Signal Unit, with a strength of approximately 310 officers and men, supports the United Nations force by the provision of communications, staff officers and other headquarters personnel; the bulk of the Unit is stationed in Leopoldville, with signal detachments at subordinate headquarters throughout the country. (3) Canadian Army contributions to United Nations commissions include some 25 officers employed in Kashmir, Korea and Palestine.

A specially trained and equipped infantry battalion is maintained on standby in Canada to provide at short notice a force for service in support of the United Nations in any part of the world. In addition to its United Nations commitments, the Canadian Army, as a result of Canadian participation in the International Commissions for Supervision and Control in Viet Nam, Cambodia and Laos continues to provide approximately 75 officers and men for truce supervisory duties in Indo-China. During 1961, a Canadian Armed Forces Training Team was established in Ghana to assist in the training of the Ghana Armed Forces. The Canadian Army provides 24 of the members of this Team, the Royal Canadian Navy three, and the Royal Canadian Air Force three.

Survival Operations.*—On Sept. 1, 1959, certain civil defence responsibilities were assigned to the Army. The Army is supported in this assignment by the Royal Canadian Navy and the Royal Canadian Air Force, the Defence Research Board providing assistance in research. (See also pp. 1164-1167.)

A National Survival Attack Warning System has been established to give warning of an impending attack. A Canadian Army Liaison Officer is stationed at NORAD Headquarters and Canadian Army Sections are located in the appropriate NORAD Regional Headquarters in the United States and at Northern NORAD Regional Headquarters at St. Hubert. All of these have access to early warning information which enables them to keep a watch over friendly and enemy air traffic over Canada and the Northern United States. Warning centres near Ottawa and in each province are manned 24 hours a day. Dissemination of alerts to the general public will be by siren signals and radio broadcasts over emergency networks in the provinces. Responsibility for the provision of sirens, their maintenance and necessary control circuits lies with the Army. The siren program is being extended to ensure adequate coverage for the probable target areas, the surrounding municipalities and other selected cities. Communication links have been installed from federal and provincial warning centres to designated broadcast studios to ensure that warnings can be disseminated to the public.

The establishment of a Nuclear Detonation and Fallout Reporting System was approved in June 1960. Since then the system has progressed steadily and at an accelerated rate since August 1961. The system will provide for the reporting of nuclear detonations, their ground zero, height of burst, and yield. This information is needed to determine the

* As at May 1962.

areas that would likely be affected by fallout so that the public may be warned. The co-operation of other federal, provincial and municipal departments and agencies and volunteer civilian and commercial organizations has been sought and obtained to permit an effective system to be provided. Information from this system will be passed to the public via the National Survival Attack Warning System. Provision has been made for an exchange of nuclear detonation and fallout data with the United States.

The Army was also given the responsibility for re-entry into areas damaged by nuclear detonations or contaminated by serious radioactive fallout, decontamination work in those areas and the rescue and provision of first aid to those trapped or injured. The problem of re-entry into each of the 16 most probable target cities has been studied and it resolves itself into two basic tasks. The first is to establish immediate control in the stricken area and the second is to bring the maximum number of rescuers to bear in the shortest possible time. To accomplish this, a headquarters responsible for planning the re-entry operation has been established in the vicinity of each target city. Planning staffs are now functioning and interim plans, based on the present capability, will be completed shortly. Further planning is in progress to increase the forces available by the use of military cadres and civilian volunteers. These units will provide not only basic first aid and rescue but also decontamination, casualty sorting and police and fire services. Assistance and instruction will be given to those who remain in the damaged area and plans are being made in respect of those who live in areas that may be subjected to serious radioactive fallout. Planning is being conducted in conjunction with all levels of civil government and their agencies such as police, fire and health services.

The Army was also given the task of assessing the amount of damage and the number of casualties after a nuclear detonation. Procedures have been evolved through which government agencies will use information provided by the Army to determine the resources remaining after an attack. These procedures were practised during Exercise TOCSIN B in November 1961. Pamphlets covering procedural and training matters are being distributed.

Planning of emergency communications has been completed by the Army and construction of the various stations is in progress.

Training.—The policy of training is determined at Army Headquarters. General Officers Commanding Commands implement the training policies within their Commands except for training conducted at Army and corps schools that are under the direct supervision of Army Headquarters. During 1961, the basic training of 6,387 recruits and the corps training of officers and men of the Canadian Army (Regular) was carried out at regimental depots, units and corps schools, and 9,032 personnel attended courses at the schools of instruction. Promotion qualification examinations consisting of written and practical tests were held to qualify Regular and Militia officers for the ranks of Captain and Major; 233 Regular officers completed qualification for the rank of major and 124 Regular officers completed qualification for the rank of captain. Five officers passed the entrance examinations for the Royal Military College of Science. Fifty-one Canadian Army officers commenced a two-year course at the Canadian Army Staff College and five officers commenced courses at Commonwealth Staff Colleges. A training program was conducted during the winter months for all Regular officers to further their professional knowledge. Militia Staff Course examinations were conducted for Militia officers to qualify Captains and Majors for command and staff appointments. Qualifying courses for junior NCO's were conducted under General Officers Commanding Commands. Senior NCO courses were conducted at corps schools in accordance with training standards.

French and English language training, which is available to all ranks of the Canadian Army, was conducted by Commands and AHQ. The R22eR Depot Language Wing conducted six-month French language courses for English-speaking officers and NCO instructors. A number of French-speaking potential NCO's also received English language training.

Officers from the RCN and RCAF as well as officers from Australia, Britain, Denmark, France, India, Italy, Pakistan, Turkey and the United States attended courses at Canadian Army schools of instruction.

Trade and specialty training is given at corps schools and units. Where feasible, the facilities of civilian schools are used to supplement training at Army establishments. Training is conducted in accordance with the appropriate training standard for each trade or specialty. When required by technical developments in the Army, trades are revised and new trades are introduced. Trades relating to aircraft maintenance have been introduced in keeping with the decision that the Army will use certain aircraft.

The apprentice training program inaugurated in September 1952 is designed to train selected young men as soldier tradesmen and to give them a background for advancement to senior non-commissioned ranks in the Army. A high entry standard has been set to ensure that the prospective soldier apprentice will be capable of absorbing trade and academic training and also of developing the leadership qualities essential in Senior NCO's. During 1961 an additional 495 apprentices were enrolled and 42 civilian teachers were employed to provide academic instruction for about 900 apprentice soldiers. Academic credits are obtained from the educational authorities of the province where the training is conducted. Apprentices receive training as technical assistants (field), surveyors RCA, field engineers, radio and telegraph operators, radio equipment technicians, teletype and cipher equipment technicians, teletype operators, linemen, transport operators, administrative clerks, storemen, accounting clerks, storemen clerks, radio technicians, electrical mechanics, tracked vehicle mechanics, weapons technicians and instrument technicians. In addition, apprentices enrolled in the Royal Canadian Engineers may, on completion of the apprentice training, be trained as carpenters, masons, painters, electricians, draughtsmen (architectural and engineering), training aids artists and driver radio operators. A balanced training program is designed to stimulate the interest of the apprentice. Military, trade, academic and recreational training are integrated. Separate messing, canteen and sleeping arrangements are provided for apprentices.

The training of the Defence of Canada Force continued throughout 1961. Airborne continuation training was carried out by each unit in conjunction with unit exercises. Defence of Canada Force units carried out exercises during the winter under cold weather conditions. Parachute and air supply courses were conducted at the Canadian Joint Training Centre at Rivers, Man., and courses in Arctic training at Fort Churchill, Man. Collective training for units in Canada was carried out during the summer months at Camp Gagetown, Camp Petawawa and Camp Wainwright. All arms training comprised sub-unit and unit training and culminated in exercises at the Brigade Group level.

The Regular Officer Training Plan (ROTP).—The Regular Officer Training Plan is in effect at the three Canadian Services Colleges and at all Canadian universities and affiliated colleges that have contingents of the COTC. The purpose of the Plan is to train selected students for commissions in the Canadian Army (Regular). Students enrol in the Canadian Army (Regular) with a special rate of pay; tuition and essential fees are paid and grants are given for books and instruments needed for study. During the year ended Mar. 31, 1962, 108 of these sponsored students graduated and were commissioned in the Canadian Army (Regular). Training consists of military studies, drill and physical training during the academic year; the summer term is devoted to practical training at military establishments.

The Canadian Officers' Training Corps (COTC).—In addition to the Regular Officer Training Plan, units of the Canadian Officers' Training Corps are maintained at Canadian universities to produce primarily, from among university undergraduates, officers for the reserve components of the Army. University graduates who have been members of the Canadian Officers' Training Corps are also eligible for commissions in the Canadian Army (Regular). Members of the COTC undertake the same training as members of the ROTP. During the year ended Mar. 31, 1962, 16 who had trained with the COTC were awarded commissions in the Canadian Army (Regular).

Canadian Army (Militia).—Funds were provided to permit an average of 40 days of training for all ranks, plus up to 70 days of training for key personnel in the Militia. This included seven days of summer training for selected personnel by attachment to Regular Army units, attendance at command National Survival camps and in-job training at headquarters. During the summer, 23,707 all ranks, including members of the Canadian Women's Army Corps and Young Soldiers, participated in this training. A special Militia training program designed to train 100,000 men for national survival operations was undertaken for the period November 1961 to May 1962. At Mar. 31, 1962, a total of 71,942 men had enrolled.

Royal Canadian Army Cadets.—The aim of the Army Cadet Organization is to provide cadets with a sound knowledge of military fundamentals based on the qualities of leadership, patriotism and good citizenship. Planning and the supervision of organization, administration and training are carried out by the Canadian Army (Regular). A total of 113 officers and men are employed continuously on these duties.

Training and administration of Army cadets are the responsibility of officers of the Cadet Services of Canada, a sub-component of the reserves, and civilian instructors. As at Mar. 31, 1962, a total of 2,366 cadet instructors were engaged in these activities. The cadet training year is divided into local headquarters and summer camp periods. At local headquarters, cadets take a progressive three-year course in basic military subjects. Selected cadets are given additional training at summer camps.

In 1961, 5,034 army cadets attended seven-week trades and specialist courses at summer camps at Aldershot, N.S.; Farnham, Que.; Camp Borden, Ont.; Ipperwash, Ont.; and Vernon, B.C. An additional 931 cadets attended two-week junior leader and special courses at Aldershot, N.S.; Camp Borden, Ont.; Clear Lake, Man.; and Rivers, Man. Two hundred and fifteen Master and First Class cadets attended the National Cadet Camp, Banff, Alta., for four weeks. Four hundred and five cadet instructors attended qualifying courses of up to seven weeks and another 495 were employed on training and administrative duties at summer camps.

In 1961 there was an increase of 3,963 in the number of cadets registered; in July the strength ceiling was raised from 67,600 to 75,000. As at Mar. 31, 1962, a total of 69,934 boys organized into 498 corps were enrolled as Royal Canadian Army Cadets.

Subsection 3.—The Royal Canadian Air Force

Organization.—The RCAF is controlled from Air Force Headquarters at Ottawa, which is responsible for planning, policy and administration of the Regular and Reserve components of the RCAF. The Headquarters organization comprises four major Divisions—Plans and Operations, Technical Services, Personnel, and Resources Control. On Mar. 31, 1962, the major RCAF formations and their Headquarters locations were as follows:—

<u>Formations</u>	<u>Headquarters</u>
Air Defence Command.....	St. Hubert, Que.
5 Air Division.....	Victoria, B.C.
1 Air Division.....	Metz, France
Air Transport Command.....	Trenton, Ont.
Air Materiel Command.....	Rockcliffe, Ont.
Maritime Air Command.....	Halifax, N.S.
Training Command.....	Winnipeg, Man.

The organization included 27 flying squadrons of the RCAF Regular and 11 flying squadrons of the RCAF Auxiliary. The Auxiliary squadrons performed an emergency and rescue role. Five of the Regular squadrons contributed to the air defence of the Canada-United States regions; 12 squadrons were assigned to the air defence of Western Europe; five squadrons were required for RCAF transport operations at home and abroad; four maritime squadrons operated in conjunction with other forces for the defence of Canada's East and West Coasts; and one reconnaissance squadron carried out aerial photography and reconnaissance in Canada.

The strength of the RCAF at Mar. 31, 1962 was 53,119 officers and men in the Regular Force and 2,398 in the Auxiliary Air Force.

Operations in 1961.—The RCAF continued to fulfil its air defence commitments in Canada under the North American Air Defence Command (NORAD). The Canadian air defence force of nine squadrons of *CF-100 Mk-V* aircraft was replaced by five squadrons of *CF-101B Voodoo* aircraft. In addition, the first of two *Bomarc* squadrons was activated. No. 1 Air Division in Europe, comprised of eight *F-86* and four *CF-100* squadrons and an Aircraft Control and Warning Squadron, continued to fulfil Canada's commitment to the NATO air defence fighter force.

Air Defence Command continued its planned build-up and had under operation three radar systems—the Distant Early Warning Line (DEW), the Mid-Canada Line (MCL), and the Pinetree Line—as an integral part of NORAD. The RCAF is progressively assuming responsibility for the U.S. financed and manned radar sites in accordance with the governmental agreement. The Ground Observer Corps continued operations in the North as a supplement to the Distant Early Warning radar system.

The RCAF Maritime Air Command during 1961 contributed four land-based maritime squadrons to the Maritime Defence of North America. Three of these squadrons, based on the East Coast, have been completely equipped with *Argus* aircraft, the largest and most modern anti-submarine aircraft in the world. A continuous program of aircraft modernization and re-equipping with improved anti-submarine devices was also conducted throughout the period. These three squadrons and a third *Neptune* aircraft squadron on the West Coast participated in a number of national, international and NATO anti-submarine exercises conducted throughout the year. Daily patrols and surveillance of ocean areas adjacent to the Canadian coastline were also maintained.

Air Transport Command continued to provide support to the Air Division and to the Army brigade in Europe using its new *Yukon* aircraft, and continued to support the United Nations Emergency Forces in Egypt and the Congo using *North Stars* and *Comets*. In addition, a flying unit operating *Caribou* and *Otter* aircraft was maintained for local employment in Egypt in support of UNEF. In Canada the *North Star*, *C-119* and *Hercules* aircraft of ATC were engaged in cargo and personnel carrier operations in Canada and in the support of Arctic weather stations. *C-119's* were used for paratroop training of the Canadian Army, and 408 Squadron carried out routine reconnaissance flights in the Arctic Archipelago and photographic missions for the Department of National Defence.

During the year, the RCAF continued to provide search and rescue services in Canadian areas of responsibility. Of the 40 major searches conducted, 34 were for civil aircraft and six were for military aircraft. In addition, there were six major marine searches and 229 merey flights. The total time for search and rescue operations was 7,292 hours.

Training.—During the year ended Mar. 31, 1962, the RCAF provided training for approximately 4,500 officers and airmen to replace releases, meet increased establishments and assume new appointments resulting from modernization of equipment. Basic training qualified personnel to do the rather simple but vital jobs in the RCAF; conversion and advanced training qualified personnel to perform more complex jobs and to assume increased responsibilities. During the year, training continued in the operation and maintenance of the SAGE and Bomarc systems which are becoming operational in the RCAF. To keep pace with rapid technological developments, a number of officers and airmen attended short familiarization courses on guided missiles and space technology at Clinton, Ont.; some attended brief familiarization courses on computers and other electronic equipment at Clinton; a few attended specialized courses with industrial firms in new technological developments applicable to the Air Force; and a few took postgraduate courses, mainly at Canadian universities, to qualify for highly specialized positions in technical, medical or management fields.

Pilot and radio navigator trainees received training at the Central Officers School at Centralia, Ont. Pilot trainees were given primary flying training at Centralia, basic training at Moose Jaw, Sask., or Penhold, Alta., and advanced flying training at Portage la Prairie, Man., or Gimli, Man. Radio navigators received training at Winnipeg, Man. Approximately 1,000 entrants whose native language is French were given from 10 to 21 weeks of instruction in the English language in schools located at St. Jean, Que., and Centralia, Ont.

Under bilateral agreements, 45 Danish and 30 Norwegian nationals entered training as pilots and five Turkish Air Force officers were trained as advanced jet instructors. About 10 Canadian Army officers received a special 133-hour flying training course at Centralia and 30 RCN personnel, following regular primary and basic phases, received advanced twin-engine training at Saskatoon, Sask.

Formal trade courses for tradesmen and technicians and newly commissioned non-flying list officers in aeronautical engineering, armament, supply, telecommunications and flying control were conducted at RCAF technical schools in Ontario located at Camp Borden, Centralia and Clinton. Aircraft system trainers were used extensively to support technician and aircrew training programs at field technical training units and operational training units. Advanced personnel, both Regular and Reserve, were given assistance in a wide range of subjects to help them improve in job proficiency and to qualify for higher trade groupings. Semi-annual trade examinations were written under the direction of the Training Standards Establishment located at Trenton, Ont.

RCAF Reserve.—The active sub-components of the RCAF reserves are designated as the Auxiliary and the Primary Reserve. Eleven Auxiliary Flying Squadrons, equipped with transport aircraft, are maintained to carry out emergency transport and reconnaissance operations. The RCAF also maintains 13 Auxiliary Medical Units and eight Technical Training Units. Where two or more units are located in the same city, a Wing Headquarters controls Auxiliary activities as directed by the RCAF Regular. The Primary Reserve is concerned mainly with the training of members of the University Reserve Training Plan (URTP). Other Primary Reserve components are Air Cadet Officers (ACO) and Manning Support Officers (MSO).

Each summer, some 300 first-year URTP university undergraduates attend an officers' training course at the Reserve Officers School (ROS), RCAF Station, Centralia, Ont. Following this initial training, cadets in the aeronautical engineering, telecommunications, armament, supply and accounts branches commence basic training at RCAF training schools while cadets in the medical, air services and personnel branches are employed at Regular Force units on contact training. Second-year and third-year cadets continue formal or contact training commenced in previous years.

Manning Support Officers are employed for a minimum of 15 or a maximum of 30 days during each fiscal year on Career Counselling duties at RCAF Recruiting Units. Because the majority of the MSO's are affiliated with educational institutions, their employment is normally during the summer months.

Royal Canadian Air Cadets.—Air cadet activities in Canada are sponsored and administered by the Air Cadet League of Canada. The League is a voluntary civilian organization formed in 1940 to provide preliminary aviation training for potential members of the Royal Canadian Air Force. The peacetime objectives of air cadet training are: to encourage air cadets to develop the attributes of good citizenship, to stimulate in them an interest in aviation and space technology and to help them develop a high standard of physical fitness, mental alertness and discipline. The RCAF works in partnership with the League and provides training personnel, syllabi and equipment.

The authorized ceiling of cadet enrolment is 27,000 and the strength at Apr. 15, 1962 was approximately 25,775 attached to 339 squadrons across Canada. Air cadet training is carried out in more than 270 communities from Newfoundland to British Columbia.

During the summer of 1961, camps were held at RCAF Stations at Greenwood, N.S., St. Jean, Que., Trenton, Ont., and Sea Island, B.C., attended by over 6,500 cadets together with officers and instructors. A seven-week course for senior leaders was held for 200 cadets at RCAF Station, Camp Borden, Ont.

Under the International Exchange Visits Program for 1961, sponsored jointly by the RCAF and the Air Cadet League, 58 cadets were exchanged with Britain, the United States, Denmark, the Netherlands, Norway and Sweden.

About 250 senior air cadets receive flying training annually at flying clubs through scholarships provided by the RCAF and additional scholarships are awarded by the Air Cadet League and other organizations, which in 1961 numbered 109.

Subsection 4.—The Defence Research Board

The Defence Research Board was established on Apr. 1, 1947 by an amendment to the National Defence Act. The Board consists of a full-time chairman and vice-chairman, five ex officio members and nine other appointed members. The ex officio members are the Chiefs of Staff of the three Armed Services, the Deputy Minister of National Defence and the President of the National Research Council. The other members, appointed by the Governor in Council for three-year terms, are selected from universities and industry because of their scientific and technical backgrounds.

The organization consists of headquarters staff, an operational research group and nine field research stations, and liaison offices at London, England, and Washington, U.S.A. Advisory committees composed of leading Canadian scientists provide invaluable assistance to the Board by their consideration of a variety of problems.

The Government, realizing the vital need for continuity in research, planned the Defence Research Board as a fully integrated and permanent part of the defences of the country. To assist co-ordination at the highest level, the Chairman of the Board has the status of a Chief of Staff and is a member of the Chiefs of Staff Committee and of the Defence Council. Thus the Defence Research Board has been described as a fourth Service. Its fundamental purpose is to correlate the special scientific requirements of the Armed Forces with the general research activities of the scientific community at large. The Board's policy is to select and concentrate its efforts upon defence problems of particular importance to Canada or for which Canada has unique resources or facilities. Existing research facilities such as the National Research Council are used whenever possible to meet the needs of the Armed Forces. The Board has built up new facilities only in those fields that have little or no civilian interest. From the policy of specialization it follows that close collaboration must be maintained with Canada's larger partners. Specialization is made possible only through the willingness of Britain and the United States to exchange the results of their broader programs for the less numerous but nevertheless valuable benefits of Canadian research.

The Defence Research Board operates nine specialized research and development establishments which are concerned primarily with maritime warfare, guns and rockets as armaments, defence against missiles, research on the upper atmosphere using ground-based equipment as well as balloons, rockets and satellites, propulsion and propellants, telecommunications, geophysical studies of the Arctic, defence against atomic, chemical and biological weapons, studies of shock and blast, biosciences research and operational research.

In addition to the research in its own establishments, the Defence Research Board supports and organizes an extramural program of research in the universities and industry. Some 200 grants are awarded annually to Canadian university staff members for research on problems of defence interest. In order to increase the research and development capability of Canadian industry, the Defence Research Board has a special fund which is used to place contracts with industry for research in selected fields of particular interest to defence.

Research on maritime warfare problems is carried out at the Naval Research Establishment, Dartmouth, N.S., and at the Pacific Naval Laboratory, Esquimalt, B.C. The principal emphasis at each station is on problems related to submarine detection and tracking.

Research and development of weapons and defence against various weapons is undertaken by the Defence Research Board in co-operation with the Armed Services at several establishments. The largest of these is the Canadian Armament Research and Development Establishment near Valcartier, Que. Its principal activities include studies of defence against missiles, studies of the properties and application of infrared and other detection devices, exploration of the upper atmosphere with balloons and rockets, and the development of rocket propellants.

Research on telecommunications is carried out at the Defence Research Telecommunications Establishment in Ottawa. This Establishment is concerned mainly with problems of communications and the applications of the science of electronics to military problems. Communications research involves exploration of the ionosphere with ground-based equipment, with rockets and with satellites.

The Defence Research Northern Laboratory, Fort Churchill, Man., is a field station at which a variety of experiments requiring an Arctic environment are conducted. Studies of the aurora borealis, communications experiments and rocket firings are the principal activities at this establishment.

Special weapons is the generic term used to cover research on the defensive aspects of chemical, biological and atomic weapons. This work is carried out at three Defence Research Board establishments—the Defence Research Chemical Laboratories at Ottawa, Ont., the Suffield Experimental Station at Ralston, Alta., and the Defence Research Kingston Laboratory at Barriefield, Ont.

Biosciences research is carried out at the Defence Research Medical Laboratories near Toronto. The program is concerned chiefly with raising the operating efficiency of man working in the military environment and includes such subjects as human physiology, experimental psychology and research on clothing.

Operational research is carried on in the Defence Research Board by a Headquarters group. This group conducts long-range scientific analyses of future defence problems. In addition to this group, trained operational research scientists are provided by the Defence Research Board to the operational research teams in the three Armed Services.

In all, the Board continues to support those fields of research that are of foremost interest to the Canadian Armed Services and the program is under continuing review to ensure that cognizance is taken of all changes in emphasis in defence requirements. Close liaison is maintained between the Defence Research Board and the Department of Defence Production to ensure that research and development activities are closely integrated with production.

Section 2.—Services Colleges and Staff Training Colleges

Canadian Services Colleges.—The three Canadian Services Colleges are the Royal Military College of Canada founded at Kingston, Ont., in 1876, Royal Roads which was established in 1941 near Victoria, B.C., as a school for naval officers, and Collège Militaire Royal de Saint-Jean established at St. Jean, Que., primarily to meet the needs of French-speaking cadets. The Royal Military College and Royal Roads were constituted as Canadian Services Colleges in 1948, and Collège Militaire Royal de Saint-Jean was opened in 1952. In 1959 the Legislature of the Province of Ontario granted the Royal Military College a charter empowering it to grant degrees.

The purpose of the instruction and training at the Services Colleges is to impart the knowledge, to teach the skills and to develop the qualities of character and leadership essential to officers of all three Armed Services. The courses of instruction provide a sound

and balanced liberal scientific and military education leading to degrees in arts, science and engineering which are granted by the Royal Military College. The organization and training give cadets the opportunity to command and to exercise judgment.

For cadets entering the Royal Military College and Royal Roads the course is of four years duration. As the third and fourth years of the course are given only at the Royal Military College, cadets entering Royal Roads must proceed to that College for the final two years of the arts, science or engineering courses. For cadets entering Collège Militaire Royal de Saint-Jean, which gives a preparatory year, the course is of five years duration. Cadets take the preparatory, first and second years at that institution and the final two years at the Royal Military College.

The College year is eleven months, divided into three terms—autumn, winter and summer. The months September to May are devoted to academic training supplemented by such military studies as drill and physical training. The summer term, June to mid-August, is spent in practical training at an establishment of the Service in which the cadet is enrolled. Academic requirements for admission to the first year at the Royal Military College and Royal Roads is senior matriculation (or its equivalent) in the following subjects: English, physics, mathematics (algebra, geometry and trigonometry), chemistry and either history or a language, preferably French. French-speaking candidates having a B.A. degree from a classical college may be accepted directly into the first year at Collège Militaire Royal. For admission to the preparatory year at that institution the academic requirement is junior matriculation (or its equivalent) in English, French, algebra, geometry, physics and chemistry, although consideration is given candidates who do not possess the standing in French. Candidates from the classical colleges require at least sixth-year standing.

To be accepted, a candidate must be single, a Canadian citizen or British subject normally resident in Canada and physically fit in accordance with the medical standards of the Service in which he enrolls. The age limits for admission to the first year are between 16 and 21 years as of Jan. 1 of the year of entry; for admission to the preparatory year a cadet must have reached his 16th but not his 20th birthday on Jan. 1 of the year of entry. Personal interviews and medical examinations of candidates are carried out by Service Boards located at various centres across Canada. Senior officers representing the Services and a faculty member from the Services Colleges sit on interview boards. The boards base their recommendations on the physical and personal qualifications of the candidates; responsibility for final selection rests with a board appointed by the Minister of National Defence.

Since September 1954, virtually all cadets entering the Services Colleges have been required to enrol under the Regular Officer Training Plan. Under this Plan applicants accepted for entry enrol according to their choice, as naval cadets in the Royal Canadian Navy, as officer cadets in the Canadian Army or as flight cadets in the Royal Canadian Air Force. Costs of tuition, board, lodging, uniforms, books, instruments and other essential fees are borne by the Department of National Defence and cadets are paid at the rate of \$63 a month. On successfully completing their academic and military training, cadets are granted permanent commissions in the Regular Force but may, if they so wish, apply for release after three years of service following completion of academic training.

Reserve entry was reintroduced in 1961, whereby a limited number of high school students may be selected to enter the Services Colleges on payment of tuition fees, etc. Graduates are granted commissions and serve in the reserve components of the Forces. Young men who qualify for Dominion Cadetships also serve in a reserve capacity. These Cadetships are awarded by the Federal Government in recognition of a candidate's parent having been killed, died or been severely incapacitated in the service of one of Canada's Armed Forces. A maximum of 15 Dominion Cadetships may be awarded in any one year, five in each Service. Each is valued at \$580, which covers first-year fees.

During the 1961-62 academic year, 1,082 cadets were in attendance at the Services Colleges, 454 of them at the Royal Military College of Canada, 214 at Royal Roads and 414 at Collège Militaire Royal de Saint-Jean. Of the total, 241 were enrolled in the Navy, 403 in the Army and 438 in the Air Force.

Staff Training Colleges.—The Canadian Army Staff College at Kingston, Ont., trains officers for staff appointments in peace and war. The course is 21 months in duration with a student intake every second year. Although most of the student body is composed of Canadian Army officers, officers from the other two Services and from the armies of other Commonwealth and NATO countries also attend. The system of instruction is based upon the study of précis and other references, demonstrations and lectures, and indoor and outdoor exercises. Most of the work is carried on in syndicates, each under a member of the directing staff. Attention is paid to both individual and team work. Aside from purely military subjects such as the study of tactics, the curriculum includes national survival, research and development, world affairs and lectures by prominent guest speakers.

The Royal Canadian Air Force College at Armour Heights in Toronto, Ont., is a permanent establishment consisting of a Staff School for junior officers and a Staff College for senior officers. The Staff School course is for RCAF officers only; the Staff College course is for officers of other Services as well as Air Force officers. The course affords professional education for officers normally of Squadron Leader and Wing Commander ranks, preparing them to assume higher appointments. The directing staff selected from the Royal Canadian Air Force is augmented by an exchange officer from each of the Royal Canadian Navy, the Canadian Army and the Royal Air Force. The student body, in addition to Royal Canadian Air Force officers, has eight representatives from the Royal Canadian Navy and one or two from each of the Canadian Army, Royal Air Force and United States Air Force. The course is designed to assist the student to think logically and express his ideas with precision, both orally and in writing; to know his Service and understand the employment of air forces; to keep abreast of scientific and technical developments that may affect the employment of air forces; and to gain a perspective of national and international problems. Lecturers are drawn, when desirable, from industry, the Armed Forces, the diplomatic corps and universities. Instructional visits are made to commercial and military establishments in Canada and abroad.

The National Defence College at Kingston, Ont., which opened on Jan. 5, 1948, is a senior defence college providing an 11-month course of study covering the economic, political and military aspects of the defence of Canada. Senior officers and civil servants from the Armed Forces and government departments attend, as well as a few representatives from industry. An extensive lecture course is provided, with lecturers chosen from among the leaders in various fields in Canada, the United States, Britain and other countries. In addition, educational tours and visits to certain parts of Canada, the United States, Europe and the Middle East give students more knowledge of conditions and influences in their own and other countries. The 15th course from August 1961 to July 1962 was attended by students from the following organizations: three from the Royal Canadian Navy, four each from the Canadian Army and the Royal Canadian Air Force; and one each from the Defence Research Board, the Department of External Affairs, the Department of National Defence, the Department of Finance, the Royal Canadian Mounted Police, the Air Transport Board, the Department of Northern Affairs and National Resources, Atomic Energy of Canada Limited and the Quebec Hydro Commission. Representation from outside Canada included one member each from the Royal Navy, the British Army, the Royal Air Force, the British Admiralty, the United States Army, the United States Navy, the United States Air Force and the State Department of the United States.

PART II.—DEFENCE PRODUCTION*

Under the provisions of the Defence Production Act (RSC 1952, c.62, as amended), the Department of Defence Production has exclusive authority to procure the goods and services required by the Department of National Defence and the responsibility to ensure that the necessary productive capacity and materials are available to support the defence production program. The Department also serves as procurement agent for the Canadian Commercial Corporation, a Crown company primarily responsible for the purchase in Canada of defence goods required by other governments and of supplies to meet Canadian requirements under External Aid programs and other international agreements. The Department is responsible for planning and making other necessary arrangements for the immediate establishment of a War Supplies Agency should there be a nuclear attack. Military construction is the prime responsibility of Defence Construction (1951) Limited, a Crown company reporting to Parliament through the Minister of Defence Production.

Procurement and construction contracts issued by the Department of Defence Production and its associated Crown company, Defence Construction (1951) Limited, had a net value of \$701,381,000 in 1961 and \$212,122,000 in the first quarter of 1962. (The net value of contracts is made up of the value of new contracts issued as well as amendments that increased or decreased existing contracts.) Three-quarters of the net value of contracts in 1961 was placed on behalf of the Department of National Defence and one-quarter was placed against Defence Production Votes for assistance to defence industry and the Department's Revolving Fund, for other Canadian Government departments and agencies, and for foreign governments. The net value of contracts in 1961 according to the various sources for which they were issued was as follows:—

	<i>Net Value in 1961</i>	<i>Per Cent of Total Value</i>
	\$	
Department of National Defence.....	528,773,000	75.4
Department of Defence Production (DDP Votes and Revolving Fund).....	56,562,000	8.1
Foreign Governments—		
United States.....	97,544,000	13.9
Britain.....	2,053,000	0.3
Other governments.....	1,006,000	0.1
Canadian sources other than DND and DDP—		
Colombo Plan.....	9,855,000	1.4
Other Canadian sources.....	5,588,000	0.8
TOTALS.....	701,381,000	100.0

Of the \$212,122,000 in contracts issued during the first quarter of 1962, \$148,147,000, or 70 p.c., was for the Department of National Defence and the remainder was for the other sources noted above.

The \$528,773,000 in contracts placed for the Department of National Defence in 1961 was 34.3 p.c. below the value in 1960. The aircraft program accounted for the major part of this decrease, falling from \$363,210,000 in 1960 to \$113,194,000 in 1961. The 1960 value was particularly high, however, because of high-valued contracts placed in connection with Canadian production of *CF-104* aircraft. Contracts having a net value of \$122,593,000 were placed for the electronics and communication equipment program in 1961, a decrease of 8.3 p.c. from 1960. Shipbuilding and repairing contracts also declined significantly in 1961, dropping to \$23,585,000 from \$84,657,000 in 1960. The high 1960 figure included contracts for four destroyer escorts and a tanker-supply vessel. Armament contracts

* Prepared by the Economics and Statistics Branch, Department of Defence Production, Ottawa.

(which include weapons, ammunition and explosives) amounted to \$11,311,000 in 1961, and defence construction contracts increased from \$51,571,000 in 1960 to \$90,671,000 in 1961.

Contracts placed outside Canada on behalf of the Department of National Defence in 1961 amounted to \$26,141,000, or 4.9 p.c. of the total net value of prime contracts issued. Contracts valued at \$16,747,000 were placed in the United States, \$5,022,000 in Britain and \$4,372,000 in other countries.

Expenditures on contracts placed for the Department of National Defence amounted to \$622,535,000 in 1961, 0.3 p.c. more than in 1960. Expenditures for electronics and communication equipment increased by \$35,944,000 to \$123,838,000 and those for the ships program increased by \$14,775,000 to \$45,978,000. Expenditures on the aircraft program, however, fell off by \$44,251,000 to a level of \$222,485,000 in 1961. During the first quarter of 1962, Canadian defence procurement and construction expenditures amounted to \$227,553,000.

The Department of Defence Production placed \$15,976,000 in contracts in 1961 and \$2,218,000 in the first quarter of 1962 against certain appropriations to assist Canadian defence industry. The major area of assistance in 1961, which involved contracts totalling \$13,844,000, was to sustain research and development capability in Canadian industry related to the needs of the Canada-United States development and production sharing program. Revolving Fund contracts amounted to \$40,586,000 in 1961, primarily to finance the production of five swing-tail *CC-106* aircraft and to make funds available for initial production in connection with the Canada-United States *F-104G* mutual aid program. Revolving Fund contracts amounted to \$3,692,000 in the first quarter of 1962.

Contracts placed for all sources other than the Departments of National Defence and Defence Production totalled \$116,046,000 in 1961, of which \$97,544,000 was for the United States Government, \$2,053,000 for the British Government, and \$9,855,000 for Canadian External Aid.

1.—Canadian Government Defence Contracts and Expenditures, by Defence Program, 1960, 1961 and 1st Quarter of 1962

NOTE.—The contract values include all contracts placed by the Department of Defence Production and Defence Construction (1951) Limited on behalf of the Department of National Defence, and the expenditure values include all payments made by the Department of National Defence against such contracts. The net value includes the value of all new contracts issued together with the value of amendments which increased or decreased the commitments of existing contracts.

Program	Net Value of Total Contracts			Expenditures on Contracts		
	1960	1961	1962 (1st quarter)	1960	1961	1962 (1st quarter)
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Aircraft.....	363,210	113,194	44,961	266,736	222,485	65,237
Armament.....	19,703	11,311	5,021	26,035	22,323	6,726
Electronics and communication equipment.....	133,617	122,593	17,013	87,894	123,838	43,459
Ships.....	84,657	25,585	4,883	31,203	45,978	20,871
Tank-automotive.....	6,947	10,981	4,075	8,572	8,411	3,407
Fuels and lubricants.....	50,496	48,972	21,438	39,007	38,048	13,921
Clothing and equipment.....	6,284	11,897	3,327	4,123	7,103	3,464
Construction.....	51,571	90,671	14,690	64,193	67,106	27,754
Other.....	87,800	92,569	32,740	92,830	87,242	42,713
Totals.....	894,286	528,773	148,147	620,592	622,535	227,553

Aircraft.—Initial deliveries of Canadian-produced *CF-104 Starfighter* aircraft began during 1961. Plans were laid to establish a facility in Canada to produce gyros for the *CF-104* inertial platform. Canadian sources of supply were also established for *CF-104*

equipment previously imported, such as pylons, tires, wheels, drag chutes, brakes and instruments. Under an agreement between the Governments of Canada and the United States a number of *F-104G* aircraft, associated support equipment and initial spares are to be produced in Canada as a \$200,000,000 mutual aid program. The United States is to pay three-quarters of the cost and Canada is to pay one-quarter.

Deliveries of *CC-106* long-range transport aircraft were completed in 1961. Production of the *Caribou Mk.I* aircraft continued during the year. Seventy-three of these Canadian-designed aircraft had been sold to the end of 1961, and in the first quarter of 1962 an order for an additional 53 was received from the United States. Preliminary discussions and negotiations for the production of a new jet trainer, the *CT-114 (CL-41)*, began late in 1961.

Twenty-four *CH-112 (Hiller UH-12E)* light observation helicopters and four *Cessna L-19L* aircraft were delivered during 1961. Orders were placed for a small number of *CH-113 (Vertol 107-II)* heavy helicopters, with deliveries scheduled for 1963.

Moderate activity continued on aircraft engine production. Approximately 100 *J-79-7* turbo jet engines for the *CF-104* aircraft were delivered in 1961. Preparatory work was started on the production of *J-79-11A* engines for the *F-104G* mutual aid aircraft. Orders were placed for a small quantity of *T-58* turboshaft engines for use in search and rescue helicopters.

In the area of research and development, extensive development was done on the proposed Canadian manufacture of a photographic reconnaissance pod for external fitment to the *CF-104* aircraft. Some other NATO countries have indicated an interest in this pod. Contracts were issued for an earth orbital vehicle escape technique study for the United States Air Force, for development of the *CL-91* high mobility tracked vehicle for the United States Army, and for development of the *CL-89* surveillance and target acquisition system.

Research and development programs were also undertaken in co-operation with Canadian manufacturers. One was a study of the feasibility of the design of an all-weather anti-submarine hydrofoil craft and the other was the development and testing of a high lift wing system for a short take-off and landing (STOL) fighter aircraft. The *PT-6* turboshaft engine passed an official 50-hour preliminary flight rating test and was being flown in two aircraft. Development continued on a 600-hp. gas turbine engine for the United States as a possible replacement for diesel engines in some applications.

Electronics.—Production of aircraft electronic equipment continued to be a major sector of the electronics program. Canadian production was under way on such items as the NASARR system of fire control and terrain avoidance, bomb toss computers, air data computers and sight optical display and computer equipment for the *CF-104* aircraft. Planning was begun to ensure an adequate supply of electronic items for the *F-104G* aircraft to be produced under a Canada-United States mutual aid program. Requirements of other governments, particularly for doppler navigation equipment and position and homing indicators, contributed to the increased production of aircraft electronic equipment.

Production and installation were completed on the microwave air defence communication system (ADCOM) for the Royal Canadian Air Force. Installation of additional heavy radars and their data processing equipment for the general air defence network in Canada was continued. The CADIN/SAGE leased line communications program was about two-thirds completed by the end of 1961. All major items of equipment for the Canadian Army's main communications control centre were under contract. Contracting and production continued on equipment for the ten provincial communications centres and the National Survival Attack Warning System. A beginning was made on leasing communication facilities for this program.

Production of sonar and sonobuoys continued, while production of gyro compasses, logging equipment, and plotting tables for the Royal Canadian Navy was completed. Plotting tables were also in production for the United States Navy. Variable depth sonars

were manufactured for the Royal Navy and sonobuoys for the United States Navy. A contract was placed for an additional quantity of VT fuses. Work continued on a joint Canada-United States development program for moored sonobuoys.

There was a drop in production of radars for air defence systems in 1961 but design and production for countermeasure equipment, radomes, and counter-mortar radars was continued. Electronic counter countermeasure receiver groups were in production, and production on an order for height-finding radars and spares was nearly completed. Modification kits were being produced for two types of radars so that they could perform airport surveillance as well as a ground controlled approach function. Contracts for electronic countermeasure devices and spares for radars were received from the United States Air Force. Requirements for data processing equipment also began to offset the decline in radar production.

Production of training aid simulators continued. The tactical crew procedure trainer for the *Argus* aircraft and the operational flight trainer for the *Yukon (CC-106)* aircraft were delivered to the Royal Canadian Air Force. Production proceeded satisfactorily on the *CF-104* operational flight and tactics trainer for the Royal Canadian Air Force and other NATO air forces. A models control trainer was completed and delivered to the Royal Canadian Navy.

Maintenance, repair and overhaul, and contracts for leased lines increased significantly during 1961 as a result of progress on the air defence networks and the taking over by the Royal Canadian Air Force of some of the United States Air Force Pinetree Line sites. Operation and maintenance of the Mid-Canada Line was continued.

In order to maintain a satisfactory level of Canadian content in equipment production for both Canadian and foreign requirements, financial support for the establishment of qualified sources for component parts and materials was continued. Financial assistance was also given for the development of new equipment in advance of the formulation of defence requirements so as to ensure future production for the requirements of other countries. A joint Canada-United States financed program for development in this country of an infrared acquisition unit for the Mauler system was approved and a contract awarded to the Canadian contractor.

Shipbuilding.—Work continued satisfactorily on all six destroyer escorts in the repeat-*Restigouche* program. The last two vessels are an improved version of the first four, the major changes involving a helicopter flight deck with hangar and variable depth sonar equipment. All important contracts were placed for the components needed for this program.

Work on the tanker-supply vessel for the Royal Canadian Navy proceeded satisfactorily. A standard diving vessel, a tank cleaning barge and five stevedoring barges were completed and accepted by the Royal Canadian Navy in 1961. A contract was placed for an additional tank cleaning barge as a result of competitive tenders.

Construction continued on a hydrographic and oceanographic survey vessel for the Department of Mines and Technical Surveys. Specifications for two more hydrographic survey vessels were received during 1961.

Drawings and design documents required for tendering of a Pacific Naval Laboratories research vessel were completed. Drawings and procurement of equipment for the modernization of the St. Laurent class destroyer escorts proceeded during 1961. Negotiations were concluded for the establishment in Canada of production facilities for the manufacture of noise-reducing five-bladed propellers for naval ships.

Armament.—Production for the Canadian Armed Services was completed on contracts for .30 calibre small arms ammunition, anti-submarine projectiles, pyrotechnic devices, and naval gun weathershields. Among the major items in production were practice

depth charges, 9mm, 20 pounder and 105mm howitzer ammunition, 4", 3"/50 calibre and 3"/70 calibre naval gun ammunition, torpedo warheads, spares for 3"/70 calibre naval guns, 7.62mm C1 automatic rifles and spares, 9mm sub-machine guns, navigational aids, trainfire target devices, mortar base plates, various types of sights, anti-submarine devices, and high-altitude rockets. Production began in 1961 on 105mm armour-piercing ammunition, practice bombs and pyrotechnic devices. Action was taken to procure two new anti-tank weapon systems for the Canadian Army and an improved design of acoustic homing torpedo for the Royal Canadian Navy and the Royal Canadian Air Force.

A feasibility study was undertaken in connection with the launching of test rockets from aircraft to altitudes of 100,000 feet and velocities up to ten times the speed of sound. The Black Brant development program to meet United States requirements progressed satisfactorily.

Construction.—Construction activity for the Armed Services increased slightly to \$67,106,000 in 1961, as measured by payments to contractors. The value of contracts issued increased sharply to \$90,671,000. Some of the larger contracts were for mobile homes and storage units at various locations, the extension of a hangar at Summerside, P.E.I., a runway at Chatham, N.B., the extension of a runway at Comox, B.C., a water treatment plant at Camp Gagetown, N.B., buildings at Whitehorse, Y.T., and Camp Borden, Ont., and an electronics workshop and a chiefs' and petty officers' block at Halifax, N.S. Contracts valued in excess of \$17,000,000 were awarded for regional emergency centres at six sites. Contracts were also awarded for five heavy radar bases of the Pinetree Line in Western Canada, and construction for the SAGE system was carried on at a number of Pinetree Line sites.

There was a large amount of construction in Canada in 1961 for the United States Air Force. The value of payments to contractors by the United States was \$13,044,000 as work continued on a number of projects involving the radar improvement programs.

General Purchasing.—The procurement of supplies and services not normally requiring special production facilities increased slightly in 1961 to \$181,370,000. Headquarters procurement involved major contracts for medical and dental stores, lamps, photographic equipment and supplies, canned and preserved foods, paper products, packaging materials, building supplies and hardware, furniture and furnishings, appliances, and other barrack, camp and hospital stores. Also purchased centrally were petroleum products and solid fuels, clothing and footwear, electric power generating control and distributing equipment, aircraft ground handling equipment, and all types of mechanical transport, construction and road maintenance equipment. Services arranged by headquarters included repair and overhaul, engineering studies, food catering, aerial surveys, and certain research and development projects.

Markets were thoroughly explored to promote the maximum participation by Canadian industry in the manufacture of ground handling equipment for the *CF-104* aircraft. Significant orders were placed with firms in Canada for noise suppressors, engine trailers, munition trailers, test equipment, maintenance tools, and combined ground services equipment. Research projects undertaken during the year included an investigation into the use of lignin as a rubber reinforcing agent, a study of the combustion characteristics of liquid hydrogen, and the design and development of a high acuity film processing machine for the United States Air Force. Emergency health and welfare supplies and certain Canadian Army requirements for the national survival program were purchased by headquarters. A Canadian company was awarded the contract for the initial supply and installation of dual fuel gas turbine generating sets and waste heat boilers at five radar sites. A product improvement program was undertaken for the *Bobcat* family of light vehicles. Initial action was taken on procurement in connection with a new Army combat uniform. Field boots made by the direct moulded sole process were ordered in Canada for the first time.

Substantial purchases were made on behalf of the Colombo Plan for delivery to Pakistan, Ceylon, Indonesia, Viet Nam, India and Malaya. These included flour, wood pulp, newsprint, chemical fertilizer, dump trucks, steel towers, electric cables, generators, turbines, circuit breakers, transformers and insulators.

The fourteen district offices across Canada arranged contracts with regional suppliers for fresh food, stores and services needed for immediate use by military establishments in the areas concerned. Requirements for the national survival program were given precedence and the normal procurement period was greatly reduced.

Defence Production and Development Sharing.—The value of United States defence production and development sharing prime contracts and subcontracts received in Canada in 1961 was \$142,600,000, an increase of 25 p.c. over 1960. The steady growth of United States defence sharing business in Canada from the beginning of 1959 indicates that this program has become an important part of Canada-United States joint defence and defence production arrangements.

During 1961 a continuing effort was made to refine procedural arrangements such as those involved in United States duty regulations, in security matters, and in obtaining specifications. The Buy American Act was further liberalized in relation to Canadian supplies, and the source listing of Canadian firms with United States agencies was carefully reviewed.

Working groups designed to provide closer liaison between the Department of Defence Production and the United States Air Force were established during the year, and the United States Navy named specific officers to act as contact points on production sharing in appropriate bureaus. The United States Services issued further directives and instructions which placed Canadian industry on more equal terms with United States industry in defence contracting and subcontracting.

The provision of information on the program to prime contractors and subcontractors, as well as to government procurement officers, was emphasized by both governments. A new edition of the Canadian Commodities Index, listing over 500 Canadian companies actively interested in defence production sharing, was issued in 1961 primarily for use in the United States. A steady demand continued for the handbook, *Canada-United States Defence Production Sharing*, issued in 1960, of which over 15,000 copies had been distributed to the end of 1961. Similar publications concerned with research and development were being prepared for distribution in 1962.

In some special cases where American contractors have written off their preproduction and tooling costs under previous contracts, the Department provided assistance to Canadian firms bidding on United States contracts by absorbing part of their preproduction and tooling costs. New contractual commitments for such assistance totalled \$1,370,000 in 1961, largely for assistance in the production of counter-mortar radar, 7.62mm cartridges, an electronic counter countermeasure device and circuit boards. Assistance was also given to research and development projects by Canadian industry which were of interest to the United States Services. Contracts amounting to \$13,844,000 were made in 1961 for this type of assistance. The major new commitments were in connection with the *Caribou Mk.II* aircraft, the *PT-6* turboshaft and turboprop engines, a 600-hp. gas turbine engine, airborne doppler radar and the *CL-91* high mobility light utility carrier.

These efforts resulted in significant increases in bid solicitation and submissions for prime contracts. Solicitations rose from 2,693 in 1960 to 5,786 in 1961, and submissions from 957 to 1,799. Contracts placed by the United States Government with Canadian Commercial Corporation increased from 446 to 830, the latter valued at \$70,383,000. In the subcontract area, solicitations fell from 2,719 in 1960 to 2,524 in 1961, and responses from 2,120 to 1,986. Subcontracts received by Canadian firms, however, rose from 882 to 1,111, valued at \$69,082,000. Other prime contracts received directly from the United States Government by industry and universities in Canada totalled \$3,135,000.

Co-operation in NATO on RDP and Exports Overseas.—This program of research, development and production endeavours to attain maximum efficiency in standardization and production of military equipment by member countries of the North Atlantic Treaty Organization. Canada has submitted for consideration by the NATO groups a number of projects in the fields of vertical and short take-off and landing (V/STOL) aircraft, mobile radar, vehicle navigation equipment, sonar equipment, personnel carriers, anti-tank weapons, anti-personnel land mines, airborne navigation aids, aircraft engines, and telephone terminal equipment.

Canadian industry was encouraged to participate in supplying the defence needs of European and other countries in such areas as aircraft, navigation aids and engine spares. During 1961, Canadian firms reported that they had received \$11,954,000 in prime contracts and subcontracts from NATO and other countries (excluding the United States). Prime contracts accounted for \$24,893,000, of which the major items were *Otter* and *Caribou* aircraft for Ghana, flight simulators for a number of NATO countries that have adopted the *F-104G* aircraft, and engine spares and power flight controls. Subcontracts placed in Canada by overseas countries amounted to \$17,060,000, the largest being for position and homing indicators.

Emergency Supply Planning.—During 1961, significant progress was made with preparations necessary to bring a War Supplies Agency into effective existence immediately on the outbreak of nuclear war, should one occur. This Agency would assume full control over all aspects of the production, distribution and pricing of supplies for both civil and military purposes, except certain aspects of agriculture and fishing. An interim organizational structure for the War Supplies Agency, designed to meet anticipated supply requirements during the first few weeks after nuclear attack, was developed and approved.

The staffing of the national component of the War Supplies Agency was completed by the selection, on a standby basis, of suitably qualified persons from various government departments and agencies in Ottawa. The staffing of the ten regional components, also on a standby basis, neared completion and arrangements were under way with the various provincial governments to draw on their personnel resources for this purpose, as well as on business and industry and the field staffs of various federal departments and agencies.

In order to provide a basis on which the War Supplies Agency could make a post-attack assessment of surviving supply resources, a research program was initiated to produce in readily usable form comprehensive inventory data on major stocks of essential commodities and related production facilities normally available in this country. Substantial progress was made in the collecting and processing of data on stocks of food and petroleum products. Also, methods were developed in co-operation with the Canadian Army and the Emergency Measures Organization for evaluating surviving resources after attack. Various regulations and orders likely to be required by the War Supplies Agency in exercising effective control of supplies under conditions of nuclear war were prepared in draft form. Considerable work was done on the development of an industrial preparedness program.

PART III.—CIVIL EMERGENCY PLANNING (CIVIL DEFENCE)

In 1958, the Canadian Government instituted a survey of the civil defence situation in Canada in the context of the total military and civilian arrangements necessary to prepare the nation for the possibility of nuclear war. This review led to a major rearrangement of federal civil defence functions, together with an offer from the Federal Government to assume certain responsibilities previously carried out by the provinces and municipalities. This reorganization of civil defence became effective on Sept. 1, 1959, and was based on the two principles that, first, civil defence should be considered a function or activity of government rather than a separate organization as such and, second, the civil defence

function should be divided into clearly defined tasks, assigned to the appropriate level of government and, at each governmental level, made the responsibility of those departments and agencies best able to undertake and discharge them.

At the federal level, the reorganization may be summarized briefly as follows:—

- (1) The Emergency Measures Organization is the co-ordinating agency for all civil emergency planning and for all federal-provincial planning. It is responsible for planning for continuity of government, for tasks hitherto grouped under the designation "civil defence" and not now specifically assigned to some other department of government, and for general liaison with the provinces, NATO and foreign countries on matters relating to civil emergency planning.
- (2) The Department of National Defence, more particularly the Army, has been given a primary role in survival operations and has been delegated responsibility for a substantial number of functions that are technical in character such as the complete public warning system, radiation monitoring and fallout prediction, emergency governmental communications, re-entry into damaged areas and support of local authorities in the maintenance of law and order (see also pp. 1148-1149).
- (3) The Department of National Health and Welfare (which formerly had the major responsibility for civil defence) will concentrate its attention mainly on advising and assisting provincial authorities with respect to the provision of emergency health and welfare services. This Department has retained responsibility for the operation and management of the Canadian Civil Defence College at Arnprior, Ont.
- (4) The Royal Canadian Mounted Police has the responsibility of providing advice and assistance to provinces concerning the preservation of law and order and the control of road traffic under emergency conditions.
- (5) Other federal departments and agencies have duties that relate chiefly to carrying on essential functions or to maintaining the country's economic life under conditions of nuclear attack—the Department of Defence Production, the Department of Agriculture, the Department of Finance, the Bank of Canada, the Department of Transport, the Canadian Broadcasting Corporation and the Department of Labour in consultation with the National Employment Service of the Unemployment Insurance Commission.
- (6) What was known as Federal Civil Defence Headquarters has disappeared.

Certain emergency functions of government are a projection of normal peacetime provincial responsibilities. In such fields, the provinces and municipalities understandably have more experience and knowledge of local conditions and problems than has the Federal Government and its agencies. The following represent responsibilities of this kind and are considered to be the proper concern of provincial authorities with such federal assistance as may prove necessary:—

- (1) Preservation of law and order and the prevention of panic, by the use of their own police, municipal police, and special constables, with whatever support is necessary and feasible from the RCMP and the Armed Services at provincial request.
- (2) Control of road traffic, except in areas damaged or covered by heavy fallout, including special measures to assist in the emergency movement of people from areas likely to be attacked or affected by heavy fallout.
- (3) Reception services, including arrangements for providing accommodation, emergency feeding and other emergency supplies and welfare services for people who have lost or left their homes or who require assistance because of the breakdown of normal facilities.
- (4) Organization and control of medical services, hospitals, and public health measures.
- (5) Maintenance, clearance and repair of highways.
- (6) Organization of municipal and other services for the maintenance and repair of water and sewage systems.
- (7) Organization of municipal and other fire fighting services, and control over and direction of these services in wartime except in damaged or heavy fallout areas, where fire fighting services would be under the direction of the Army as part of the re-entry operation.
- (8) Maintenance and repair of electrical utilities, and the allocation of the use of electricity to meet emergency requirements.
- (9) Training of civilians as civil defence workers.

In outline, the federal Civil Emergency Planning Organization consists of a Cabinet Committee on Emergency Plans to give policy guidance in all areas of civil emergency planning for war; the federal Emergency Measures Organization with a headquarters staff at Ottawa and regional offices in each provincial capital, and departmental planning staffs. The function of the regional offices of the Emergency Measures Organization is to co-ordinate the emergency planning of federal departments and agencies in the provinces and maintain effective liaison with provincial governments, the provincial emergency planning organizations and the appropriate military authorities. At the international level, the Emergency Measures Organization has an officer in Paris to maintain liaison with other NATO countries and to keep abreast of developments in civil emergency planning in these countries. Liaison with the United States in this field is carried out by the headquarters staff in Ottawa.

The federal Emergency Measures Organization administers a Financial Assistance Program to assist the provinces and municipalities with the development of emergency plans. Under this program, the Federal Government may pay up to 75 p.c. of the cost of approved civil defence projects. For the fiscal year ending Mar. 31, 1963, \$4,800,000 has been earmarked for this purpose. In addition to offering financial assistance, the federal Emergency Measures Organization gives advice and guidance where possible, and during 1961 issued a *Survival Planning Guide for Municipalities* to assist communities in the preparation of emergency plans.

In order to provide the public with information on survival measures, shelter designs and related matters, the federal Emergency Measures Organization and other government agencies have been active in the publication of informative literature of various kinds. In March and April 1962 the federal Emergency Measures Organization made available to the public a booklet called *Survival in Likely Target Areas* and a leaflet entitled *Simpler Shelters*. The first of these publications was designed to assist Canadians who live in major cities which might be target areas in the event of nuclear war. The booklet examines the advantages and disadvantages of evacuation as opposed to shelter. *Simpler Shelters* provides five designs for less complex shelters for both basement and outdoor construction. These two publications supplement the booklet *11 Steps to Survival*, a general outline of what Canadians can and should do to protect themselves, *Your Basement Fallout Shelter* giving instructions for do-it-yourself fallout shelters, and *Fallout on the Farm* describing the effects of radioactive fallout on agriculture and the protective measures which might be taken against it. Copies of these various publications may be obtained from provincial civil defence or emergency measures co-ordinators in provincial capitals.

Because of the importance of goods and commodities in time of emergency, the government created the elements of a War Supplies Agency in 1960. This agency, under the Department of Defence Production, will in time of war control the distribution and use of essential supplies, their prices, and their rationing as required. The Emergency Supply Planning Branch of the Department of Defence Production, which has direct responsibility for the development of this agency, has a headquarters staff in Ottawa and representatives in each region of Canada. (See also pp. 1163-1164.)

One of the major responsibilities of the Emergency Measures Organization is the development of plans for the continuity of effective government in an emergency. To this end emergency facilities for the Federal Government have been established outside Ottawa and construction is under way to provide regional facilities in six of the ten provinces. In the remaining provinces plans are proceeding for the development of similar facilities.

To ensure continuity of communications in an emergency, a peacetime planning nucleus of a wartime agency to control and administer national telecommunications systems has been established within the Department of Transport. It is known as the Emergency National Telecommunications Organization (ENTO) and under its authority the Canadian Broadcasting Corporation has developed plans for emergency broadcasting which can be instituted at any time of the day or night to broadcast to all areas of Canada. The plan provides for the maintenance of broadcast services under emergency conditions.

To ensure the close co-ordination of federal and provincial activities, a Federal-Provincial Conference on Civil Emergency Planning was held in November 1961. All provinces were represented and five federal Cabinet Ministers attended. This represented a continuation of conferences that have been held in previous years. Matters reviewed and discussed included the Financial Assistance Program, public information, training and exercises, shelter policy, radiological defence, and the decentralization of government in an emergency.

CHAPTER XXVI.—SOURCES OF OFFICIAL INFORMATION AND MISCELLANEOUS DATA

CONSPECTUS

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PART I.—SOURCES OF OFFICIAL INFORMATION

The chief source of statistical information on all phases of the economy of Canada is the Dominion Bureau of Statistics where the ten-year and five-year censuses of Canada are planned and statistical information of all kinds—federal and provincial—is centralized. Certain areas of effort, such as trade and commerce, customs and excise, currency and banking, navigation, transportation, radio, population and national defence are constitutionally federal affairs and on such subjects the respective departments at Ottawa are the proper sources of information with which to communicate. Other fields of effort such as the administration of lands and natural resources, education, roads and highways, and health and hospitals are the responsibility of the provinces and data may be obtained concerning the individual provincial efforts in these fields from the respective provincial government departments. However, certain federal departments are also concerned with specific aspects of these subjects and, as in the case of the Dominion Bureau of Statistics, in the co-ordination and presentation of the material for Canada as a whole. The Government of Canada, while not administering the resources within the provincial boundaries, co-operates closely with the provinces and is in a position to furnish material for Canada, especially production data on a national basis, marketing data on international, national and provincial bases, research work and experimental station data on a national basis, and also on a provincial basis from Federal Government stations located within particular provinces. In agriculture, for instance, data on the breeding of livestock and the improvement of strains, on agricultural marketing and on crop yields are cases in point; in forestry, questions of forest research, forest fire protection and reforestation offer good examples.

Certain Federal Government bodies and national agencies, because of the nature of their work and the appeal it has to broad sections of the population, are organized primarily as information or publicity agencies. Among these are: the Information Division, Department of External Affairs, which deals with questions about external affairs originating in Canada and with general requests originating abroad for information on Canada and Canadian affairs; the Trade Publicity Branch, Department of Trade and Commerce; the Information Services Division, Department of National Health and Welfare; the Canadian Broadcasting Corporation; and the National Film Board. The Departments of Agriculture, Fisheries, Forestry, Northern Affairs and National Resources, and Mines and Technical Surveys, and such agencies as the National Gallery of Canada, the National Museum of Canada, the National Library, and the National Research Council, while not thus classed, are interested in the dissemination of information to a greater extent than most of the remaining government departments, although several of the latter have publicity branches.

Thus, inquiries for information of a statistical nature should be forwarded to the Information and Public Relations Division, Dominion Bureau of Statistics, Ottawa. Inquiries to federal sources for information not of a statistical nature should be sent as a general rule to the individual departments and agencies of government which are listed, with their functions, at pp. 92-109 of this publication. Inquiries relating to provincial efforts may be directed to the provincial government department concerned. Inquiries about the Yukon and Northwest Territories should be addressed to the Northern Administration Branch, Department of Northern Affairs and National Resources, Ottawa.

Sale of Official Publications.—Under the provisions of the Public Printing and Stationery Act, the Queen's Printer and Controller of Stationery, Ottawa, has charge of the sale of all official publications of Parliament and the Government of Canada that are issued to the public, as well as of the free distribution of all public documents and papers to persons and institutions (libraries) entitled by statutory provisions to receive them. The regulations relating to the distribution and sale of government publications made in accordance with the provisions of Sect. 7 of the Public Printing and Stationery Act and Sect. 7 (c) of the Financial Administration Act were brought up to date and approved by Treasury Board on Mar. 31, 1955.

In compliance with these regulations, the Queen's Printer and Controller of Stationery issues the *Daily Checklist of Government Publications* which records for the information of the public service, libraries, etc., all Federal Government publications immediately upon release. Those authorized by law or regulation to receive free copies of government publications receive the *Daily Checklist* without charge; others desiring the service may purchase an annual subscription to be forwarded daily or in weekly batches as requested.

The Queen's Printer and Controller of Stationery also issues the *Monthly Catalogue of Canadian Government Publications*, a comprehensive listing of all official publications, public documents and papers not of a confidential nature published at government expense, an *Annual Catalogue* (in January) listing all publications issued during the previous year, as well as sectional catalogues and selected titles bulletins advertising new government publications.

Dominion Bureau of Statistics Publications.—The Dominion Bureau of Statistics acts as the agent of the Queen's Printer with respect to the sale of DBS publications. Reports of the Bureau cover all aspects of the national economy; the *Canada Year Book* and *Official Handbook Canada* constitute authoritative compendiums of information on the institutions and economic and social development of Canada.

DBS publications are listed with their prices in a catalogue of *Current Publications* and in the Queen's Printer's Catalogue of *Canadian Government Publications*. The DBS *Daily Bulletin* and *Weekly Bulletin*, available from the Bureau's Information and Public Relations Division at an annual subscription of \$1 each, are designed to serve persons wishing to keep closely informed on the full range of published information issued by the Bureau. Subscription orders for DBS publications or orders for single copies should be addressed to the Information and Public Relations Division, Dominion Bureau of Statistics, Ottawa, and should contain the necessary remittance in the form of a cheque or money order made payable to the Receiver General of Canada.

Provincial Government Publications.—Most provincial government publications may be obtained from the Queen's Printer of the province concerned. Inquiries should be addressed to the provincial capital cities:—

Newfoundland.....	St. John's	Ontario.....	Toronto
Prince Edward Island...	Charlottetown	Manitoba.....	Winnipeg
Nova Scotia.....	Halifax	Saskatchewan.....	Regina
New Brunswick.....	Fredericton	Alberta.....	Edmonton
Quebec.....	Quebec	British Columbia.....	Victoria

Directory of Sources of Official Information.—The *Canada Year Book* normally carries a detailed Directory of Sources of Official Information (Federal and Provincial) as a Section of this Chapter, which is designed for the purpose of directing the reader to the proper channels from which he might draw published material relating to any particular subject. Since there was little change required in the Directory as presented in the 1961 edition of the Year Book at pp. 1192-1224, it is not repeated here in the interests of economy but will be included again in subsequent editions.

PART II.—SPECIAL MATERIAL PUBLISHED IN FORMER EDITIONS OF THE CANADA YEAR BOOK

It is not possible to include in any single edition of the Year Book all articles and descriptive text of previous editions. Therefore the following list has been compiled as an index to such miscellaneous material and special articles as are not repeated in the present edition. This list links up the 1962 Year Book with its predecessors in respect of matters that have not been subject to wide change. Those Sections of Chapters, such as "Population", which are automatically revived when later census material is made available and to which adequate references are made in the text, are not listed unless they are in the nature of special contributions. The latest published article on each subject is shown, except when an earlier article includes material not repeated in the later one. When an article covers more than one subject it is listed under each appropriate heading.

The articles marked with an asterisk (*) are available in reprint form from the Information and Public Relations Division, Dominion Bureau of Statistics.

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Prairie Farm Rehabilitation Program.....	WILLIAM DICKSON.....	1938	223-230
Historical Background of Canadian Agriculture.....	G. S. H. BARTON.....	1939	187-190
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The Major Soil Zones and Regions of Canada.....	P. C. STOBBE.....	1951	352-356
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Major Developments in Organization and Policy of the Federal Department of Agriculture.....	—	1954	366-370
*Marketing of Farm-Produced Foods.....	—	1956	917-922
*Postwar Agriculture.....	—	1957-58	392-396
The Revolution in Canadian Agriculture.....	H. H. HANNAM.....	1960	434-439
The Board of Grain Commissioners.....	W. J. MACLEOD.....	1960	957-958
The Canadian Wheat Board and its Role in Grain Marketing.....	C. B. DAVIDSON.....	1960	958-960
The National Agricultural Program.....	S. C. BARRY.....	1961	399-402
Art, Literature and the Press—			
Art in Canada.....	—	1924	886-888
The Development of the Fine Arts in Canada.....	NEWTON MCTAVISH.....	1931	995-1009
A Bibliography of Canadian History.....	GUSTAVE LANCTOT.....	1939	36-40
*The Democratic Functioning of the Press.....	W. A. BUCHANAN.....	1945	744-748
Report of the Royal Commission on National Development in the Arts, Letters and Sciences.....	—	1952-53	342-345
*A History of Canadian Journalism, 1752-(circa) 1900.....	W. H. KESTERTON.....	1957-58	920-934
*A History of Canadian Journalism (circa) 1900-1958.....	W. H. KESTERTON.....	1959	883-902
(Reprint includes both articles)			

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Banking and Finance—			
The Bank of Canada and its Relation to the Financial System.....	—	1937	881-885
Historical Sketch of Currency and Banking..	—	1938	900-906
The Royal Canadian Mint.....	H. E. EWART.....	1940	888-892
The Wartime Functions of a Central Bank...	—	1942	803-806
Wartime Control under the Foreign Exchange Control Board.....	R. H. TARR.....	1941	833-835
The Underwriting and Distribution of Investments; their Influence on the Capital Market.....	—	1942	830-833
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The Canada Conversion Loan.....	E. C. GOULD.....	1959	1130-1131
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Commercial Banking in Canada.....	J. DOUGLAS GIBSON.....	1961	1115-1120
Citizenship—			
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PART III.—REGISTER OF OFFICIAL APPOINTMENTS*

The following list of official appointments continues up to Aug. 31, 1962, the list published in the 1961 Year Book at pp. 1231-1237, except that appointments to the Governor General's staff, judicial appointments and those formerly carried under the heading of "Miscellaneous" are now omitted.

Queen's Privy Council.—1961. *Dec. 28*, Hon. Noël Dorion, a member of the Queen's Privy Council for Canada and Secretary of State for Canada: to be President of the Queen's Privy Council for Canada. Hon. Walter Morley Aseltine, Leader of the Government in the Senate; Leslie Miscampbell Frost, Lindsay, Ont.; and Jacques Flynn, Quebec, Que.: to be members of the Queen's Privy Council for Canada. **1962.** *May 1*, John Bracken, Manotick, Ont.: to be a member of the Queen's Privy Council for Canada. *Aug. 10*, Richard Albert Bell, Britannia Heights, Ont.; and Paul Martineau, Campbell's Bay, Que.: to be members of the Queen's Privy Council for Canada. Hon. Malcolm Wallace McCutcheon, Gormley, Ont.: to be a member of the Queen's Privy Council for Canada and a member of the Administration.

Lieutenant-Governors.—1961. *Oct. 6*, Hon. Paul Comtois, Pierreville, Yamaska County, Que.: to be Lieutenant-Governor of the Province of Quebec, effective Oct. 6, 1961.

Cabinet Ministers.—1961. *Dec. 28*, Jacques Flynn, Quebec, Que.: to be Minister of Mines and Technical Surveys. **1962.** For subsequent appointments see Appendix I.

Senators.—1961. *Oct. 6*, Malcolm Hollett, St. John's, Nfld.: to be a member of the Senate and a Senator for the Province of Newfoundland. **1962.** *June 15*, Harry Albert Willis, Peel County, Ont.: to be a member of the Senate and a Senator for the Province of Ontario. J. Campbell Haig, Winnipeg, Man.: to be a member of the Senate and a Senator for the Province of Manitoba. *Aug. 9*, Malcolm Wallace McCutcheon, Gormley, Ont.: to be a member of the Senate and a Senator for the Province of Ontario.

Parliamentary Secretaries.—1962. *Aug. 17*, Theogène Ricard and G. W. Baldwin: to the Prime Minister. H. M. McQuarrie: to the Secretary of State for External Affairs. Thomas M. Bell: to the Minister of Justice. W. B. Nesbitt: to the Minister of Trade and Commerce. J. A. McBain: to the Minister of Transport. H. F. Jones: to the Minister of Veterans Affairs. R. J. McCleave: to the Minister of Public Works. Mrs. Jean Casselman: to the Minister of National Health and Welfare. W. H. Graftey: to the Minister of Finance. A. D. McPhillips: to the Minister of Fisheries. A. D. Hales: to the Minister of Labour. W. H. Jorgenson and L. J. Pigeon: to the Minister of Agriculture. J. A. McGrath: to the Minister of Mines and Technical Surveys. Frank McGee: to the Minister of Citizenship and Immigration.

Deputy Ministers.—1962. *Mar. 29*, Jean Miquelon, Montreal, Que.: to be Under Secretary of State and Deputy Registrar General of Canada. *Apr. 17*, Louis-Zéphirin Rousseau, Quebec, Que.: to be Deputy Minister of Forestry, effective July 31, 1962. *July 11*, Gordon Ward Hunter, Assistant Deputy Minister of Defence Production: to be Deputy Minister of Defence Production.

Diplomatic Appointments.—1961. The following diplomatic appointments were announced during the year. W. Arthur Irwin, Canadian Ambassador to Mexico: to be also Ambassador Extraordinary and Plenipotentiary of Canada to Guatemala. Blanche Margaret Meagher: to be Ambassador Extraordinary and Plenipotentiary of Canada to Austria. Yvon Beaulne: to be Ambassador Extraordinary and Plenipotentiary of Canada to Venezuela. **1962.** The following diplomatic appointments were announced during the year. Norman Frederick Berlis: to be High Commissioner for Canada to Tanganyika.

*All academic and honorary degrees and military honours omitted.

Charles Eustache McGaughey: to be High Commissioner for Canada to the Federation of Malaya, with concurrent accreditation as Ambassador Extraordinary and Plenipotentiary of Canada to Burma and Thailand. Evan William Thistle Gill: to be High Commissioner for Canada in the Commonwealth of Australia. Charles Stewart Almon Ritchie: to be Ambassador Extraordinary and Plenipotentiary of Canada to the United States of America. Jean Bruchési, Canadian Ambassador to Spain: to be accredited to Morocco. George Pirkis Kidd: to be concurrently Ambassador Extraordinary and Plenipotentiary of Canada to Haiti. Bruce MacGillivray Williams: to be concurrently Ambassador Extraordinary and Plenipotentiary of Canada to Togo, Ivory Coast, Upper Volta and Guinea. Thomas LeMesurier Carter: to be concurrently Ambassador Extraordinary and Plenipotentiary of Canada to Senegal, Niger and Dahomey. Joseph-Louis-Eugène Couillard: to be Ambassador Extraordinary and Plenipotentiary of Canada to Norway, with concurrent accreditation as Ambassador Extraordinary and Plenipotentiary of Canada to Iceland. Jean-Louis Delisle: to be Ambassador Extraordinary and Plenipotentiary of Canada concurrently to the Republic of El Salvador. Paul Bridle, Canadian Ambassador to Turkey: to be Canadian Commissioner in Laos, succeeding Léon Mayrand. Michel Gauvin: to be Charge d'Affaires of the Canadian Embassy in the Republic of the Congo (Leopoldville). Fulgence Charpentier: to be Ambassador Extraordinary and Plenipotentiary of Canada to the Republic of Cameroun with concurrent accreditation as Ambassador to Chad, Gabon, Congo (Brazzaville) and the Central African Republic. Saul Forbes Rae: to be Ambassador and Permanent Representative of Canada to the European Office of the United Nations. George Ignatieff: to be Ambassador and Permanent Representative of Canada to the European Office of the North Atlantic Council. Arthur Julian Andrew: to be Ambassador Extraordinary and Plenipotentiary of Canada to Israel, with concurrent accreditation as High Commissioner of Canada to Cyprus. Jules Léger: to be Ambassador Extraordinary and Plenipotentiary of Canada to Italy. Paul Tremblay: to be Permanent Representative and Ambassador of Canada to the United Nations. John Kennett Starnes: to be Ambassador Extraordinary and Plenipotentiary of Canada to the Federal Republic of Germany. James Joseph Hurley: to be Ambassador Extraordinary and Plenipotentiary of Canada to South Africa.

National Defence—Chiefs of Staff.—1961. *Aug. 16*, Major-General G. Walsh: to be Chief of the General Staff, with the rank of Lieutenant-General, effective Oct. 1, 1961, *vice* Lieutenant-General S. F. Clark. **1962.** *Mar. 29*, Acting Air Marshal Clarence Rupert Dunlap: to be Chief of the Air Staff, with the rank of Air Marshal, effective Sept. 15, 1962, *vice* Air Marshal Hugh Campbell.

Government Appointments to Miscellaneous Boards, Commissions, etc.

Air Transport Board.—1962. *Mar. 27*, G. Russell Boucher, Ottawa, Ont.: to be a member, *vice* A. D. McLean, from Apr. 2, 1962.

Army Benevolent Fund Board.—1961. *Nov. 23*, Alex Walker and A. J. Wickens: to be again members for a term of four years from Dec. 3, 1961.

Atomic Energy Control Board.—1961. *Oct. 18*, George C. Laurence, Atomic Energy of Canada Limited: to be a member and President, *vice* C. J. Mackenzie, resigned. **1962.** *Mar. 22*, W. M. Gilchrist and J. L. Gray: to be members for a further term of three years from Apr. 1, 1962.

Bank of Canada.—1961. *Dec. 1*, John Robert Beattie: to be Deputy Governor for a term of seven years from Jan. 1, 1962. **1962.** *Feb. 8*, Frederick Field, Vancouver, B.C.; Hervé Baribeau, Lévis, Que.; C. Hedley Forbes, Fredericton, N.B.; and Stephen N. MacEachern, Saskatoon, Sask.: to be reappointed directors for a term of three years, commencing Mar. 1, 1962. William S. Perlin, St. John's, Nfld.: to be a director for the remainder of the term of George Graham Crosbie, resigned, namely to Feb. 28, 1963. *Feb. 16*, R. W. DeWolfe, Wolfville, N.S.: to be a director for the remainder of the term of J. H. Mowbray Jones, resigned.

Canada Council.—1961. *Sept. 5*, Raoul Jobin, Montreal, Que.: to be a member for a term of three years. **1962.** *Feb. 15*, J. M. S. Wardell, Fredericton, N. B.: to be a member for a term of three years, *vice* Lady Dunn, resigned. *Apr. 23*, Douglas Black Weldon, London, Ont.: a member of the Canada Council: to be Chairman for the term expiring May 17, 1964. Gérard Filion, Montreal, Que.: to be Vice-Chairman for a term of five years. Trevor Frank Moore, Toronto, Ont.; David Park Jamieson, Sarnia, Ont.; and Samuel Steinberg, Montreal, Que.: to be members for a term of three years from May 14, 1962. Mrs. Margaret Harvey, Victoria, B.C. (May 14, 1962); Gerald Winter, St. John's, Nfld. (May 14, 1962); and Frank Lynch-Staunton, Lundbreck, Alta. (May 19, 1962): to be members for a term of three years from the date set following the name. *Apr. 24*, Luc Lacourcière, Quebec, Que.: to be a member for a term of three years from May 14, 1962, *vice* Émile Tellier.

Canadian Broadcasting Corporation.—1961. *Nov. 15*, Norman Bruce Buchanan, St. Stephen, N.B.: to be a Director. Gertrude Alexandra Carter, Salmon Arm, B.C.; Mrs. C. Armstrong, Calgary, Alta.; William Lewis Morton, Winnipeg, Man.; Kate Aitken, Toronto, Ont.; Charles W. Leeson, Stratford, Ont.; Raymond Dupuis, Montreal, Que.; Robert Lionel Dunsmore, Montreal, Que.; and C. B. Lumsden, Wolfville, N.S.: to be again Directors.

Canadian Commercial Corporation.—1962. *July 11*, Hugh Taylor Aitken, Export Credits Insurance Corporation: to be a Director, *vice* Finlay Smith Sim, resigned.

Canadian National Railways.—1961. *Sept. 28*, Donald Gordon: to be Chairman of the Board of the Canadian National Railways for a further term of two years. J. R. Griffith, Saskatoon, Sask.; and W. Gerald Stewart, Moncton, N.B.: to be Directors for a further term of three years. Walter Colquhoun, Sydney, N.S.; J. Louis Levesque, Montreal, Que.; Guy Charbonneau, Montreal, Que.; Gilbert Ernest Ayers, Lachute Mills, Que.; Alex McDougall McBain, Toronto, Ont.; Harry Isaac Price, Toronto, Ont.; John Beverley Sangster, Regina, Sask.; Robert Arthur Brown, Calgary, Alta.; and Walter Koerner, Vancouver, B.C.: to be Directors for a term expiring Sept. 30, 1964.

Canadian Pension Commission.—1961. *Nov. 15*, Wilbur T. Nixon: to be an *ad hoc* member for one year from Jan. 1, 1962. **1962.** *Feb. 1*, C. B. Topp: to be an *ad hoc* member for one year from Mar. 15, 1962. *Mar. 22*, William Howard August: to be an *ad hoc* member for a period of six months from May 1, 1962. *Apr. 13*, William D. Flatt, Ottawa, Ont., an *ad hoc* member: to be a member for a period of six years from May 1, 1962. Kenneth McKay, Drayton Valley, Alta.: to be an *ad hoc* member for one year from May 1, 1962. *Apr. 19*, Gage Workman Montgomery: to be a member for a period of six years from May 1, 1962.

Canadian Wheat Board.—1961. *Dec. 22*, J. B. Lawrie, Canadian Wheat Board: to be a Commissioner, *vice* John Thompson Dallas.

Copyright Appeal Board.—1961. *Oct. 17*, Rodrigue Bédard, Associate Deputy Minister of Justice: to be a member, *vice* C. Stein, resigned. A. Alex Cattanaach, Assistant Under Secretary of State and Advisory Counsel: to be a member, *vice* Paul Fontaine, resigned.

Defence Research Board.—1962. *Apr. 19*, David Aaron Golden, Deputy Minister of Defence Production: to be again a member for a term expiring Mar. 31, 1965. Roger Gaudry, Director of Research, Ayerst, McKenna and Harrison, Ltd., Montreal, Que.: to be a member for a term expiring Mar. 31, 1965. *June 4*, Walter Raymond Trost, Dean of Graduate Studies, Dalhousie University, Halifax, N.S.: to be a member for a term expiring Mar. 31, 1965.

Dominion Coal Board.—1961. *Sept. 26*, Colin Lewis O'Brian, Ottawa, Ont., Dominion Coal Board: to be a member and Chairman. **1962.** *Apr. 17*, John Malcolm Brodie, Winnipeg, Man.: to be a member, *vice* Gustave A. Vissac, resigned.

Dominion Council of Health.—1961. *Dec. 14*, Rupert D. Ramsay, Saskatoon, Sask.: to be a member for a period of three years, *vice* John M. Cröss. **1962.** *Mar. 13*, Georgette-P. Gélinas, Montreal, Que.: to be a member for a period of three years. *Mar. 22*, Armand Frappier, Director of the Institute of Microbiology and Hygiene, University of Montreal, Montreal, Que.: to be a member for a period of three years. Minerva Snider, Nursing Superintendent, Stratford General Hospital, Stratford, Ont.: to be a member for a period of three years.

Fisheries Prices Support Board.—1961. *Sept. 26*, Willoughby R. Ritecy, Riverport, N.S.: to be a member, *vice* W. Stanley Lee, deceased.

Great Lakes Fishery Commission.—1961. *Dec. 29*, Arthur Owen Blackhurst, Port Dover, Ont.: to be again a Commissioner for Canada for a period ending Dec. 1, 1963. **1962.** *Aug. 22*, John Richardson Dymond, Toronto, Ont.: to be again a Commissioner for Canada for a period of two years from Sept. 1, 1962.

Historic Sites and Monuments Board of Canada.—1961. *Nov. 8*, James John Talman, London, Ont.: to be a member for a period of three years from Dec. 18, 1961. **1962.** *Feb. 16*, E. W. Sansom: to be a member representing the Province of New Brunswick for a term of three years, *vice* John P. Palmer, resigned. *Apr. 5*, Reginald Earl Taylor, Charlottetown, P.E.I.: to be again a member for the Province of Prince Edward Island for a period from May 17, 1962 to June 30, 1966. William David Smith, Brandon, Man.: to be again a member for the Province of Manitoba for a period from May 19, 1962 to June 30, 1966.

International Joint Commission.—1962. *Feb. 22*, René Dupuis, Montreal, Que.: to be a Commissioner for a term of one year from Feb. 23, 1962. *Apr. 21*, Arnold Danford Patrick Heeney: to be a Commissioner, from Apr. 15, 1962.

International Pacific Halibut Commission.—1961. *Dec. 29*, Richard Nelson, Vancouver, B.C., and Harold Helland, Prince Rupert, B.C.: to be members for a term expiring Oct. 31, 1963.

National Advisory Council on Fitness and Amateur Sport.—1962. *Jan. 11*, Kenneth P. Farmer, Montreal, Que.: to be a member for a term of three years, and to be Chairman. John Ready, Charlottetown, P.E.I.; Dorothy Walker, Halifax, N.S.; E. (Andy) O'Brien, Montreal, Que.; Maurice (Rocket) Richard, Montreal, Que.; Reverend Father de la Sablonnière, Montreal, Que.; Herb Trawick, Montreal, Que.; Joe Poirier, Ottawa, Ont.; Ted Reeve, Toronto, Ont.; Melville F. Rogers, Ottawa, Ont.; James Worrall, Toronto, Ont.; Andrew Currie, Winnipeg, Man.; Edgar Wallace Stinson, Saskatoon, Sask.; W. H. Pettigrew, Edmonton, Alta.; and R. F. Osborne, Vancouver, B.C.: to be members for the term of two years. H. (Howie) Meeker, St. John's, Nfld.; Reverend Father Louis Armstrong, Yarmouth, N.S.; O. MacCollum, Saint John, N.B.; Vern De Geer, Montreal, Que.; Roch Lachance, St. Damien, Que.; André Marceau, Quebec, Que.; Charles Mayer, Montreal, Que.; Harry Ebbs, Toronto, Ont.; H. E. (Red) Foster, Toronto, Ont.; Margaret Lord, Hamilton, Ont.; Harvey McFarland, Picton, Ont.; Right Reverend J. O. Anderson, Winnipeg, Man.; Thomas (Scotty) Melville, Regina, Sask.; Robert D. Freeze, Calgary, Alta.; and Allan McGavin, Vancouver, B.C.: to be members for a term of three years.

National Capital Commission.—1961. *July 6*, S. F. Clark: to be a member and Chairman for a term of four years, effective Oct. 1, 1961. *Sept. 28*, Peter J. Stokes, Toronto, Ont.: to be architect in charge of planning the historical re-development of the east side of Sussex Drive in Ottawa as a Centennial project. **1962.** *Feb. 15*, Aimé Guertin, Hull, Que.; and Mrs. R. H. MacLeod, New Glasgow, N.S.: to be members for a term expiring Feb. 6, 1964; and G. E. Beament, Ottawa, Ont.; R. D. Chénier, Rockcliffe, Ont.; Mrs. Henry F. Gyles, Winnipeg, Man.; and Mrs. Robert E. Sutherland, Charlottetown, P.E.I.: to be members for a term expiring Feb. 6, 1966. *Apr. 17*, John Leonard Haw, Calgary, Alta.: to be a member, *vice* E. R. Tavender, to hold office for a term expiring Feb. 6, 1966.

National Design Council.—1961. *Sept. 5*, John C. Parkin, Toronto, Ont.: to be a member and Chairman for a term of three years. Morris Fisher, Sackville, N.B.; Louis-Philippe Poiré, Lévis, Que.; Carl A. Pollock, Kitchener, Ont.; George Soulis, Waterloo, Ont.; Clair Stewart, Toronto, Ont.; Edwin A. Gardner, Ottawa, Ont.; Carl J. Lochnan, Ottawa, Ont.; and F. Emmerson West, Vancouver, B.C.: to be members for a term of three years. Harold Short, Arnprior, Ont.; Hugh J. Sedgwick, Hamilton, Ont.; Donald L. Mordell, Montreal, Que.; Marion Burrows, Regina, Sask.; Harold William Sprague, Edmonton, Alta.; B. Guy Ballard, Ottawa, Ont.; Charles F. Comfort, Ottawa, Ont.; and Gaëtan-C. Morrisette, Montreal, Que.: to be members for a term of two years.

National Energy Board.—1962. *June 26*, Ian A. McKinnon: to be again a member and Chairman for a term of seven years from Aug. 15, 1962.

National Film Board.—1961. *Sept. 5*, George V. Haythorne, Deputy Minister of Labour: to be a member for the remainder of the term of Charles Stein, resigned. **1962.** *Feb. 6*, Margaret Stevens, Flin Flon, Man.; and Arthur Dansereau, Montreal, Que.: to be again members from Feb. 26, 1962. Mrs. Keith Rand, Port Williams, N.S.: to be again a member from Feb. 6, 1962.

National Harbours Board.—1961. *Sept. 7*, Howard A. Mann, appointed a member and Vice-Chairman for a term of ten years from Nov. 1, 1960: to be Chairman for the balance of the said term, *vice* Maurice Archer, resigned. Louis-René Talbot, Quebec, Que.: to be a member and Vice-Chairman.

National Library Advisory Council.—1961. *Dec. 28*, Harry Bernard, St. Hyacinthe, Que.: to be a member for a term of four years from Jan. 1, 1962. **1962.** *Mar. 1*, Mrs. F. H. Fish, Calgary, Alta.; and George Frederick Clarke, Woodstock, N.B.: to be members for a term expiring Dec. 31, 1965.

National Productivity Council.—1961. *Sept. 5*, Gordon L. Harrold, Calgary, Alta.: to be a member for a term of three years, *vice* J. R. Brownlee, deceased. **1962.** *Jan. 26*, J.-Claude Hébert, Montreal, Que.: to be a member representing the field of industry and commerce for a term of three years, *vice* Jean Raymond, resigned. *Jan. 30*, George Edward Hall, London, Ont.: to be a member representing the general public for a term of three years. *Feb. 22*, Walter C. Koerner, Vancouver, B.C.: to be a member for a term of three years, *vice* Harold R. MacMillan, resigned. *Mar. 29*, E. F. L. Henry, Toronto, Ont.: to be a member and Executive Director for a term of three years from May 1, 1962.

National Research Council.—1962. *Mar. 29*, F. A. Forward, University of British Columbia, Vancouver, B.C.; F. K. Hare, McGill University, Montreal, Que.; F. R. Hayes, Dalhousie University, Halifax, N.S.; G. A. Krotkov, Queen's University, Kingston, Ont.; and W. F. McLean, President, Canada Packers, Ltd., Toronto, Ont.: to be members for a term of three years from Apr. 1, 1962 to Mar. 31, 1965.

National Technical and Vocational Training Advisory Council.—1961. *Dec. 5*, Fraser Fulton, Horace Laverdure, Mrs. Saul Hayes, N. D. Cochrane, M. MacKenzie, Jean Delorme and B. F. Addy: to be members for a period expiring Sept. 1, 1962. G. H. Paquette, S. T. Payne, Mrs. F. R. Duminy, W. H. Sands, Edward D. MacPhail, Maurice Barrière and B. Scott Bateman: to be alternates for a period expiring Sept. 1, 1962.

Royal Commission on Finance.—1961. *Oct. 18*, Hon. Dana Harris Porter, Toronto, Ont.; W. Thomas Brown, Vancouver, B.C.; James Douglas Gibson, Toronto, Ont.; Gordon L. Harrold, Calgary, Alta.; Paul H. Leman, Montreal, Que.; John C. MacKeen, Halifax, N.S.; W. A. Mackintosh, Kingston, Ont.: to be Commissioners under Part I of the Inquiries Act to inquire into and report upon the structure and methods of operation of the Canadian financial system; Hon. Dana Harris Porter to be Chairman.

Tariff Board.—1962. *Mar. 13*, Léo Gervais, Quebec, Que.: to be a member for a term of ten years from Apr. 1, 1962.

Tax Appeal Board.—1962. *Mar. 8*, John Owrey Weldon: to be a member for a period of ten years from Mar. 15, 1962.

Trans-Canada Air Lines.—1961. *Sept. 28*, J. Campbell Haig, Winnipeg, Man.: to be a Director.

Unemployment Insurance Commission.—1961. *Sept. 21*, C. A. L. Murchison, Ottawa, Ont.: to be again a Commissioner for a term of one year from Oct. 20, 1961.

War Veterans Allowance Board.—1961. *Aug. 29*, Charles Henry Rennie, Victoria, B.C.: to be a temporary member from Oct. 2, 1961. *Sept. 14*, Paul Barbour Cross, Ottawa, Ont.: to be Deputy Chairman from Sept. 1, 1961. *Nov. 30*, Gilmour F. Schoales, formerly of Winnipeg, Man.: to be a member from Dec. 1, 1961. **1962.** *July 25*, Charles Henry Rennie, formerly of Victoria, B.C.: to be again a temporary member for one year from Oct. 2, 1962.

PART IV.—FEDERAL LEGISLATION, 1961-62

The Acts passed at the Fourth Session of the Twenty-Fourth Parliament from its opening on Nov. 17, 1960 to July 13, 1961 when it recessed are listed in the 1961 Year Book at pp. 1237-1241. The legislation passed at the remainder of the Session which began on Sept. 7, 1961 and prorogued Sept. 28, 1961 is outlined below, followed by the legislation passed at the Fifth Session of the Twenty-Fourth Parliament which began Jan. 18, 1962 and ended Apr. 19, 1962.

These classified lists of federal legislation have been compiled from the Statutes. Naturally in summarizing material of this kind it is not always possible to convey the full implication of the legislation. The reader who is interested in any specific Act is therefore referred to the Statutes of Canada in the given volume and chapter.

Legislation of the Latter Part of the Fourth Session of the Twenty-Fourth Parliament, Sept. 7, 1961 to Sept. 28, 1961*

Subject, Chapter and Date of Assent	Synopsis
9-10 Eliz. II	
Finance—	
58 Sept. 29	<i>The Federal-Provincial Fiscal Arrangements Act</i> provides the necessary authority for carrying out the new fiscal arrangements made between the Government of Canada and the governments of the provinces; to be in force for a five-year period commencing at the conclusion of the present arrangements under the Federal-Provincial Tax-Sharing Act.
64 Sept. 29	<i>Appropriation Act No. 5, 1961</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1962.
Transportation—	
56 Sept. 29	<i>An Act respecting the Construction of a Line of Railway in the Province of Alberta and in the Northwest Territories by Canadian National Railway Company from a point at or near Grimshaw, in the Province of Alberta, in a northerly direction to Great Slave Lake, in the Northwest Territories.</i>
63 Sept. 29	<i>An Act to amend the Transport Act</i> is a minor amendment which includes motor vehicle operators with those agencies permitted to make formal complaints to the Board of Transport Commissioners against agreed charges.
Miscellaneous—	
57 Sept. 29	<i>The Civil Service Act</i> revises previous legislation respecting the organization of the federal Civil Service, the appointment of personnel and the terms and conditions of employment and authorizes the establishment of regulations under which the purposes and provisions of the Act may be carried out.
59 Sept. 29	<i>The Fitness and Amateur Sport Act</i> provides financial and other assistance intended to encourage, promote and develop fitness and amateur sport in Canada.

*See text above.

Legislation of the Latter Part of the Fourth Session of the Twenty-Fourth Parliament, Sept. 7, 1961 to Sept. 28, 1961—concluded

Subject, Chapter and Date of Assent	Synopsis
Miscellaneous— concluded	
60 Sept. 29	<i>The National Centennial Act</i> establishes a National Centennial Administration, the function of which is to promote interest in, and to plan and implement programs and projects relating to the Centennial of Confederation in Canada. For the purpose of integrating provincial and federal plans, the Act authorizes the establishment of a National Conference on Canada's Centennial which will include representatives from the provinces.
61 Sept. 29	<i>An Act to amend the National Housing Act</i> increases the amounts available from the Consolidated Revenue Fund for direct loaning by the Central Mortgage and Housing Corporation, for housing research and community planning, for university housing projects and for loans for municipal sewage treatment projects.
62 Sept. 29	<i>The Natural Resources Transfer (School Lands) Amendment Act</i> amends certain agreements entered into between the Government of Canada and the Governments of Manitoba, Alberta and Saskatchewan, giving those provinces full power to administer and dispose of the school lands and school land funds referred to in the agreements.

**Legislation of the Fifth Session of the Twenty-Fourth Parliament,
Jan. 18, 1962 to Apr. 19, 1962**

Subject, Chapter and Date of Assent	Synopsis
10-11 ELIZ. II	
Agriculture—	
15 Mar. 23	<i>An Act to amend the Farm Improvement Loans Act</i> extends the period of operation of the Act to June 30, 1965 and establishes at \$400,000,000 the limit of guaranteed loans that may be made from July 1, 1962 to that date.
21 Apr. 5	<i>An Act to amend the Canadian Wheat Board Act</i> makes a number of changes including: re-defining "grain" to include rapeseed; transferring responsibility for the Board to the Minister of Agriculture from the Minister of Trade and Commerce; providing for group life insurance and group medical-surgical insurance for Board members; deferring to Aug. 1, 1967 the repeal of those sections of the Act relating to the control of deliveries into elevators and railway cars and to the regulation of interprovincial and export trade in wheat.
25 Apr. 18	<i>An Act to amend the Canada Grain Act</i> revises the statutory grades for rapeseed to meet present-day trade requirements.
Finance—	
1 Feb. 7	<i>Appropriation Act No. 1, 1962</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1962.
12 Mar. 23	<i>Appropriation Act No. 2, 1962</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1962.
20 Apr. 5	<i>Appropriation Act No. 3, 1962</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1963.
23 Apr. 18	<i>Appropriation Act No. 4, 1962</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1962.
24 Apr. 18	<i>Appropriation Act No. 5, 1962</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1963.
Trade—	
14 Mar. 23	<i>An Act to amend the Export Credits Insurance Act</i> increases the number of directors of the Export Credits Insurance Corporation and increases the guaranteed maximum liability of importers at any one time from \$200,000,000 to \$300,000,000.
19 Mar. 23	<i>An Act to amend the Small Businesses Loans Act</i> permits a business improvement loan to be made for the construction or purchase of alternative premises in cases where relocation is deemed desirable.

**Legislation of the Fifth Session of the Twenty-Fourth Parliament,
Jan. 18, 1962 to Apr. 19, 1962—concluded**

Subject, Chapter and Date of Assent	Synopsis
Transportation—	
8 Feb. 23	<i>An Act to amend an Act respecting the Construction of a line of railway by Canadian National Railway Company from Optic Lake to Chisel Lake, and the Purchase by Canadian National Railway Company from The International Nickel Company of Canada, Limited, of a line of railway from Sipiwek to a point on Burntwood River near Mystery Lake, all in the Province of Manitoba.</i>
9 Feb. 23	<i>An Act respecting the Construction of a line of railway in the Province of Alberta by Canadian National Railway Company from Whitecourt, Alta., in a westerly direction for a distance of approximately 23.2 miles to the property of Pan American Petroleum Corporation.</i>
13 Mar. 23	<i>An Act to authorize the Construction and Operation on behalf of Her Majesty of a line of railway in the Province of Quebec between Malane and Ste. Anne des Monts.</i>
18 Mar. 23	<i>An Act to amend the St. Lawrence Seaway Authority Act increases from \$335,000,000 to \$345,000,000 the limit of the amounts that may be borrowed by the Authority under the Act and that are outstanding at any time.</i>
Welfare—	
2 Feb. 15	<i>An Act to amend the Blind Persons Act increases to \$65 monthly the maximum amount of allowance and increases the permissible income limits.</i>
3 Feb. 15	<i>An Act to amend the Disabled Persons Act increases to \$65 monthly the maximum amount of allowance and increases the permissible income limits.</i>
4 Feb. 15	<i>An Act to amend the Old Age Assistance Act increases to \$65 monthly the maximum amount of assistance and increases the permissible income limits.</i>
5 Feb. 15	<i>An Act to amend the Old Age Security Act increases the pension from \$55 monthly to \$65 monthly.</i>
6 Feb. 15	<i>An Act to amend the Veterans Insurance Act extends the time within which contracts of insurance may be obtained from Sept. 30, 1962 to Oct. 31, 1968.</i>
7 Feb. 15	<i>An Act to amend the War Service Grants Act extends from Sept. 30, 1962 to Oct. 31, 1968 the time within which re-establishment credit may be made available to members of the Armed Forces.</i>
10 Feb. 23	<i>An Act to amend the Children of War Dead (Education Assistance) Act redefines "student" and extends the benefits under the Act to certain classes of children previously excluded. The amounts of allowances are increased and provision made for the extension in certain cases of the period during which allowances and costs may be paid.</i>
11 Feb. 23	<i>An Act to amend the Civilian War Pensions and Allowances Act authorizes the payment of allowances (similar to those paid to veterans) to specified groups of civilians who during World Wars I or II were engaged in occupations equally as hazardous as those of members of the Armed Forces. The widows and orphans of such civilians are also eligible.</i>
29 Apr. 18	<i>An Act to amend the Veterans' Land Act extends the period during which a veteran may qualify for benefits; establishes dates on which persons shall be deemed to be discharged; extends repayment periods of loans; provides for group life insurance for veterans; and provides for further financial assistance to farmers and commercial fishermen, etc.</i>
Miscellaneous—	
16 Mar. 23	<i>An Act to amend the Fisheries Improvement Loans Act extends the period during which guaranteed loans may be made to June 30, 1965.</i>
17 Mar. 23	<i>An Act to amend the Representation Act changes the name of the electoral district "MacKenzie River" to that of "Northwest Territories".</i>
22 Apr. 5	<i>An Act to amend the Judges Act provides for the salaries for two additional judges of the Trial Division of the Supreme Court of Ontario and seven additional judges of the County and District Courts of Ontario, including one chief judge.</i>
26 Apr. 18	<i>The Corporations and Labour Unions Returns Act provides for the reporting of financial and other statistics relating to the affairs of corporations and labour unions carrying on activities in Canada.</i>
27 Apr. 18	<i>An Act to amend the Customs Act extends the time within which a request for a re-determination or a re-appraisal may be made and the time within which any loss, damage or misdescription of goods must be verified in order to qualify for a refund of duty.</i>
28 Apr. 18	<i>An Act to amend the Representation Act changes the name of the electoral district of "Nanaimo" to that of "Nanaimo-Cowichan-The Islands".</i>

PART V.—CANADIAN CHRONOLOGY

Events in the general chronology from 1497 to 1866 are given in the 1951 Year Book, pp. 46-49; from 1867 to 1953 in the 1954 Year Book, pp. 1259-1264; for 1954 in the 1955 Year Book, pp. 1329-1330; for 1955 in the 1956 edition, pp. 1233-1234; for 1956 in the 1957-58 edition, p. 1270; for 1957 in the 1959 edition, p. 1240; for 1958 in the 1960 edition, pp. 1255-1256; and for 1959 and 1960 in the 1961 edition, pp. 1241-1245. References regarding federal and provincial elections or changes in legislatures or ministries are not included in the following listing but may be found in Chapter II on Constitution and Government or in Appendix I.

1961

January: *Jan. 2*, Remainder of Polish treasures, stored in Quebec Provincial Museum since September 1939, left Canada on return journey, arriving in Gdynia, Poland, *Jan. 17*. *Jan. 3*, Formal termination of U.S. diplomatic and consular relations with Cuba; Canada's relations to continue. *Jan. 12-13*, Third Federal-Provincial Constitutional Conference reached general agreement with respect to amendment of BNA Act. *Jan. 16*, Canada-India nuclear plant, a gift to India by Canada under the Colombo Plan, formally opened. *Jan. 17*, Columbia River Treaty signed in Washington by Prime Minister Diefenbaker and President Eisenhower. *Jan. 20*, John Fitzgerald Kennedy inaugurated as President of the United States of America. *Jan. 27*, The City of Montreal given authority by the Quebec Government to proceed with construction of a subway. *Jan. 31*, Iranian Deputy Prime Minister Teymour Bakhtiari met with Prime Minister Diefenbaker and External Affairs Minister Green for informal discussions in Ottawa.

February: *Feb. 2*, Announcement of sale of 40,000,000 bu. of grain to Red China for \$60,000,000. *Feb. 3*, Federal Government approval of the merger of the Canadian Bank of Commerce and the Imperial Bank of Canada, to be known as the Canadian Imperial Bank of Commerce. *Feb. 10*, Frank Howard, M.P., 'named' in a vote of 149-7 and suspended from the House of Commons for one day. *Feb. 14*, Russia withdrew recognition of Dag Hammarskjöld as Secretary-General of the UN following the slaying of Congolese Premier Lumumba. *Feb. 16*, The 1961 World Figure Skating Championships cancelled following the tragic plane crash near Brussels in which the entire U.S. figure skating team and its coach lost their lives. *Feb. 20*, Prime Minister Diefenbaker held brief talks with President Kennedy in Washington on international matters. Death in Saskatoon of Mrs. Mary Florence Diefenbaker, mother of Prime Minister Diefenbaker. Announcement of federal plan to conduct aeromagnetic surveys to pinpoint mineral wealth of the Canadian Shield; \$18,000,000 to be spent by the federal and provincial governments over the next 12 years. *Feb. 21*, An Ontario Royal Commission report tabled in the Legislature endorsed fluoridation of water to reduce dental decay and recommended project assistance be given to municipalities. *Feb. 22-26*, Fourth meeting of the Canada-United States Interparliamentary Group at Ottawa and Quebec to discuss matters of common interest including defence, trade, boundary matters, cultural relations and foreign policy. *Feb. 23-24*, Federal-Provincial Fiscal Conference held in continuation of talks seeking agreement on new tax-sharing policy. *Feb. 25*, Winners of the Governor General's Literary Awards for 1960 were announced: Brian Moore (fiction); Margaret Avison (poetry); Frank Underhill (non-fiction); Anne Hébert (poetry in French); and Paul Toupin (non-fiction in French). Maria and Otto Jelinek, Oakville, Ont. won the "pair" North American free-skating title at Philadelphia.

March: *Mar. 2*, Eighty-five scientists from the ten provinces and the Yukon Territory met in Ottawa for a week-long discussion on agricultural research, the first meeting of its kind. *Mar. 4-7*, Prime Minister Diefenbaker visited Belfast, Northern Ireland, and Dublin, Ireland, the first visit to these cities by a Canadian Prime Minister while in office. *Mar. 8-17*, Annual Conference of Commonwealth Prime Ministers held in London, Canada's Prime Minister attending accompanied by Secretary of State Dorian and Justice Minister Fulton; the South African policy of apartheid was censured by Prime Minister Diefenbaker, strongly supported by leaders of Ghana, Malaya, India and Ceylon; South Africa's decision to quit the Commonwealth on May 31 resulted. *Mar. 7*, Fifteenth session of the UN Assembly resumed, attended by the largest gathering of representatives (99 member states sent delegations). *Mar. 7*, Earl Mountbatten of Burma, Chief of the British defence staff, arrived in Ottawa for discussions with Defence Minister Harkness and Canadian Chiefs of Staff. *Mar. 10*, Centennial of the birth of Canadian poet E. Pauline Johnson. *Mar. 13*, Major General Jean Victor Allard became the first Canadian officer to be named to command a British Army Division. *Mar. 14*, Establishment of a graduate students' centre at the University of Toronto, to be known as Massey College, a gift of the Massey Foundation. *Mar. 15*, Livingston T. Merchant reappointed United States Ambassador to Canada. *Mar. 16*, Bernard (Boom Boom) Geoffrion scored his 50th goal, tying the National Hockey League one-season record set by Maurice (Rocket) Richard. *Mar. 29*, France informed UN that it would not pay any part of the costs of military operations in the Congo; Britain and Canada undertook to pay all commitments to alleviate the financial crisis. Dr. J. M. Harrison, Director of the Geological Survey of Canada, elected President of the newly formed International Union of Geological Sciences in Paris.

April: *Apr. 5*, Report of the Royal Commission on Transportation tabled, recommending that the Federal Government pay the two major railways annual subsidies of about \$40,000,000 and allow them greater leeway in abandoning uneconomic services. *Apr. 7*, Death of Jackson Dodds, former joint General Manager of the Bank of Montreal and Honorary President of the National Council, Boy Scouts of Canada. *Apr. 9-10*, British Prime Minister Macmillan, accompanied by his wife, Lady Dorothy, visited Ottawa for discussions with Prime Minister Diefenbaker and the Canadian Cabinet. *Apr. 12*, First flight of man into space accomplished by Yuri Gagarin, Soviet Air Force Pilot; flight lasted one hour and 40 minutes. *Apr. 13-15*, His Excellency Constantine Caramanlis, Prime Minister of Greece, accompanied by Mrs. Caramanlis, made official visit to Ottawa. *Apr. 15*, Air Marshal W. A. Curtis elected first Chancellor of York University, Toronto. The Canadian section of the Seafarers' International Union of North America established its independence of the parent U.S. organization and

became known as the Seafarers' International Union of Canada. The Chicago Black Hawks won the Stanley Cup, symbol of hockey supremacy. *Apr. 19*, K. Sankara Pillai, First Secretary, Indian High Commissioner's Office, Ottawa, slain in his office by an intruder. *Apr. 21*, Death of Victor Sifton, editor and publisher of the Winnipeg Free Press. *Apr. 25*, Dr. Michael W. Partington, Toronto Hospital for Sick Children, named first "Queen Elizabeth II Scientist", the highest award for research by the Queen Elizabeth II Canadian Fund set up by the Federal Government in 1959 to mark the Queen's visit to Canada. *Apr. 27*, Sierra Leone ceased to be a British Colony and joined the Commonwealth as a sovereign independent nation; a \$5,000 book credit established as Canada's independence gift.

May: *May 1-2*, His Excellency Habib Bourguiba, Sr., President of Tunisia, on state visit to Ottawa. *May 2*, New flagship of the Canadian Pacific fleet *Empress of Canada*, the largest passenger ship ever to come to Montreal, arrived after her maiden voyage. *May 3*, The Federal Government concluded agreement with Red China for sales of grain amounting to \$362,000,000. *May 4*, *The Federal Maple*, first of two passenger-cargo ships presented by Canada to the Federation of the West Indies under the Canada-West Indies Aid Programme, launched. U.S. Astronaut Alan B. Shepard carried 115 miles into space and successfully returned to earth. *May 13*, Transport Minister Balcer announced new shipping policy featuring the subsidizing of Canadian shipyards and the reservation for Canadian vessels of the coasting trade in the Great Lakes. *May 16-18*, U.S. President Kennedy and Mrs. Kennedy on state visit to Ottawa. *May 24-27*, Prime Minister David Ben-Gurion of Israel on official visit to Canada. *May 28*, Swiftsure Lightship trophy won by Bonar Davis in Ches Rickard's *Winsome III*, first Canadian victory in 30-year history of the race held annually off Victoria. *May 29*, Viscount Amory appointed British High Commissioner to Canada, succeeding Sir Saville Garner. *May 31*, South Africa became a republic outside the British Commonwealth.

June: *June 1*, Canada's tenth decennial Census begun. *June 5*, "Earncliffe", once the home of Sir John A. Macdonald and now the residence of the British High Commissioner to Canada, officially marked as a national historic site. *June 6*, Royal Society of Canada medals awarded to Gérard Malchelosse, Montreal, Que.; Robertson Davies, Peterborough, Ont.; R. M. Petrie, Royal Oak, B.C.; Guy Frégault, Ottawa University; W. H. White, University of British Columbia; and C. P. Leblond, McGill University. *June 12*, Announcement of agreement between the Canadian Government and the U.S. Government to strengthen the North American region of the North Atlantic Alliance by Canada receiving 66 F-101B U.S.-made Voodoo jet interceptor aircraft in exchange for assuming operational and maintenance responsibilities of the Pinetree Line; both governments also agreed upon a joint Mutual Aid program providing for the procurement of 200 F-104G Starfighter jet aircraft from Canadian sources. *June 12-24*, Governor General Vanier and Mrs. Vanier on 6,000-mile tour of the Northwest Territories. *June 13*, Expropriations by the National Capital Commission completed for the 41,000-acre Green Belt surrounding Ottawa. *June 13-July 14*, Bitter controversy between Bank of Canada Governor James E. Coyne and the Federal Cabinet over fiscal and monetary policy, involving the appearance of Mr. Coyne before a Senate Committee and Senate rejection of a Government Bill to declare the position of Governor vacant, and culminating in resignation of Mr. Coyne. *June 15*, Report of the Royal Commission on Publications tabled in the House of Commons. *June 25*, Death of Hon. J.

A. D. McCurdy, former Lieutenant-Governor of Nova Scotia and the first man in the Commonwealth to pilot a powered aircraft. *June 25-28*, Prime Minister Hyato Ikeda of Japan visited Ottawa. *June 28*, Aid to prairie farmers in drought crisis announced by Prime Minister Diefenbaker.

July: *July 6*, Robert N. Thompson, Red Deer, Alta., elected national leader of the Social Credit Party of Canada, succeeding Solon Low, at the Party national convention held in Ottawa. *July 13*, Rt. Hon. Duncan Sandys, British Secretary of State for Commonwealth Relations, met Canadian Cabinet Ministers in Ottawa for talks re Britain's possible entry into the European Common Market. *July 12*, Death of Mazo de la Roche, Canadian writer and author of the *Jalna* series of books. *July 13*, Roy Thomson, newspaper publisher, appointed Chancellor of Memorial University of Newfoundland. *July 21*, Prime Minister Diefenbaker officially opened the \$34,000,000 government-built Arctic town of Inuvik. U.S. Astronaut Virgil I. Grissom successfully rocketed 118 miles into space at 5,280 mph. WO2 Norman Beckett, Ancaster, Ont., won the Queen's Prize for marksmanship at Bisley, England. *July 22*, New \$25,000,000 Northwest Telecommunications System microwave network, the largest single microwave project in Canada, inaugurated at Whitehorse, Y.T., by Prime Minister Diefenbaker. *July 24*, Louis Rasminsky appointed Governor of the Bank of Canada.

August: *Aug. 2*, Hon. Leslie Frost, Premier of Ontario for 12 years, announced his resignation as leader of the Ontario Progressive Conservative Party. *Aug. 3*, Premier Thomas Clement Douglas of Saskatchewan elected national leader of the newly formed New Democratic Party at Ottawa-held convention. The British Columbia Government approved the taking over of the British Columbia Electric Company as a Crown corporation. *Aug. 7*, Major Gherman S. Titov, Soviet astronaut, successfully completed space flight which carried him 17 times around the earth in 25 hours and 18 minutes. Bob Hayward in *Miss Supertest III* won the Harmsworth Trophy for Canada for the third successive year, setting a world record of 126.22 mph. for unlimited class hydroplanes; Hayward died on Sept. 12 when his craft capsized on the Detroit River. *Aug. 14-16*, Second conference of provincial premiers held at Charlottetown, P.E.I. *Aug. 10*, The National Capital Commission authorized to proceed with the historical re-development of the east side of Sussex Drive in Ottawa; Peter J. Stokes, restoration architect of Upper Canada Village near Cornwall, Ont., engaged Sept. 27 to plan the project as part of Canada's centennial preparations. *Aug. 19*, Canadian paddlers won all six events in North American championships held at Dartmouth, N.S. *Aug. 26*, Prime Minister Diefenbaker officially opened the International Hockey Hall of Fame in Toronto and announced provision of annual grants of \$5,000,000 in aid of Canadian amateur sport.

September: *Sept. 1*, Above-ground nuclear test explosion in central Asia by U.S.S.R., first by any power in almost three years, beginning a series of tests that culminated in the explosion, on Oct. 31, of a 50-megaton hydrogen bomb. The first oil-drilling rig in the Arctic Islands unloaded in preparation for drilling near Winter Harbour on Melville Island. *Sept. 5*, President Kennedy of the United States ordered a resumption of nuclear tests, to be conducted underground or in the laboratory to prevent radioactive fallout. *Sept. 6*, The first Canada Council Medals awarded to Vincent Massey, former Governor General of Canada; Lawren Harris, artist; A. Y. Jackson, artist; E. J. Pratt, poet; Healey Willan, musician;

Ethel Wilson, novelist; Marius Barbeau, writer; Wilfrid Pelletier, music conductor; Lionel Groulx, writer; and posthumously to Brooke Claxton, first Council chairman. *Sept. 7*, Announcement of 15,000-man increase in Canada's Armed Forces and plan to train 100,000 Canadians in national survival program. *Sept. 8-14*, University of Montreal was host to the universities of the whole French-speaking world in unique conference. *Sept. 9*, Negotiations in Geneva on ban of nuclear tests closed in failure after 34 months. *Sept. 11-12*, Fourth Federal-Provincial conference on constitutional amendment; slight progress reported. *Sept. 11-27*, President Asger Aegirson of Iceland and his wife on state visit to Canada. *Sept. 12*, Death of Senator J. A. Bradette of Cochrane, Ont. *Sept. 14*, Commonwealth finance ministers at Accra, Ghana. Conference opposed entry of Britain into European Common Market. Announcement of appointment of Dr. François Cloutier, Montreal psychiatrist, as director of the World Federation of Mental Health, effective January 1962. *Sept. 15*, The Sir Alexander Campbell Building, largest of the three which will make up the new Post Office headquarters at Confederation Heights, Ottawa, officially opened by Prime Minister Diefenbaker. The United States fired the first of a series of underground nuclear tests. *Sept. 18*, Dag Hammarskjöld, Secretary General of the United Nations, and others killed as UN plane crashed en route from Leopoldville, Congo, to Ndola, Northern Rhodesia. Announcement of completion of an electronic survey of Canada's polar continental shelf, officially locating legal limits of the country. *Sept. 19*, Tunisian United Nations official Nahmoud Khiri, UN chief of civil operations in the Congo, held truce talks with Katanga President; a cease-fire was agreed upon to begin *Sept. 20*. *Sept. 20*, Mongi Slim of Tunisia elected President of the General Assembly of the United Nations, the first African to hold that position. *Sept. 22*, Completion announced by the Department of Northern Affairs and National Resources of first aerial survey of wildlife inhabiting the Arctic Islands. *Sept. 25*, President Kennedy addressed the United Nations General Assembly for the first time, challenging the U.S.S.R. to a "race for peace". Her Majesty Queen Elizabeth opened the seventh Commonwealth Parliamentary Conference, the largest gathering of Commonwealth parliamentarians ever to meet in the 50-year history of the association. *Sept. 30*, Dr. C. J. Mackenzie, President of the Atomic Energy Control Board and former President of the National Research Council, announced his retirement from public life. Death of Onesime Gagnon, Lieutenant-Governor of Quebec since 1958.

October: *Oct. 1*, Establishment of the Organization for Economic Co-operation and Development (OECD) including Canada and the United States and 18 other Atlantic nations; Finance Minister Fleming elected chairman. World ploughing championship won at Grignon, France, by William C. Dixon of Brampton, Ont. *Oct. 6*, Canadian ploughing championship won at Belleville, Ont., by Cyril Heynes of Emerson, Man. Petitions bearing 141,000 names from the Canadian Committee for the Control of Radiation Hazards presented to Prime Minister Diefenbaker; at the same time Parliament Hill was picketed by members of the Voice of Women and university students organized by the Combined Universities Campaign for Nuclear Disarmament. *Oct. 8*, Death of Mr. Justice Alphonse Fournier, senior French-speaking puisne judge of the Exchequer Court of Canada. *Oct. 9*, Mrs. Eleanor Roosevelt officiated at opening of Memorial University, St. John's, Nfld. *Oct. 10-16*, President Urho Kekkonen of Finland and Mrs. Kekkonen on state visit to Canada. *Oct. 11*, The National Defence Medical Centre, a tri-service hospital to serve military personnel in major areas of Ontario and Quebec, officially opened.

The United Nations General Assembly voted 67 to 1 (with 20 abstentions, Canada being one) in favour of a motion of censure against South African policy of racial discrimination. Hon. Paul Comtois, former Federal Minister of Mines and Technical Surveys, sworn in as 21st Lieutenant-Governor of Quebec. *Oct. 13*, The Canadian Maritime Union, Canadian labour's first organized competition for the Seafarers' International Union, formally organized. *Oct. 14*, Canada and the United States conducted large-scale test of North American air defence in a 12-hour mock raid simulating a surprise nuclear strike. *Oct. 16*, Canada extended recognition to the Government of Syria, recently become independent from the United Arab Republic. Negotiations completed for delivery of 11,200,000 bu. of wheat to Poland, estimated to be worth \$20,000,000. *Oct. 17*, Trade and Commerce Minister Hees announced that the Federal Government would send 24 trade missions to other countries in the next 12 months in an effort to increase Canada's export trade. *Oct. 18*, Personnel of seven-man Royal Commission on Banking and Finance named; Chief Justice Dana H. Porter, chairman. Death of Mervyn Hardie, Member of Parliament for Mackenzie River. *Oct. 20*, Dr. James Alexander Corry formally installed as Principal of Queen's University. *Oct. 23-25*, Government-sponsored Resources for Tomorrow Conference held in Montreal to discuss problems re the best use of Canada's forest, water, fish, wildlife and soil resources; some 700 delegates attended. *Oct. 24*, Prime Minister and Mrs. Diefenbaker left Ottawa for a six-day official visit to Japan. *Oct. 25*, A plaque commemorating the achievements of Sir William Cornelius Van Horne, Canadian Pacific Railway builder, unveiled at Windsor Station, Montreal. *Oct. 27-29*, Centenary of Montreal's oldest regiment, the Victoria Rifles of Canada, celebrated in Montreal. *Oct.*, U.S. Secretary of Labour Goldberg and officials of his Department visited Ottawa returning an earlier official visit of Labour Minister Starr and Canadian officials to Washington; these visits, the first of their kind, were the result of an arrangement for an informal exchange of views, experience and information on labour questions.

November: *Nov. 3*, A son, Viscount Linley of Nymans, was born to Her Royal Highness Princess Margaret and the Earl of Snowdon; christened David Albert Charles, Dec. 20, 1961. U Thant of Burma unanimously elected acting Secretary-General of the United Nations. *Nov. 7*, Agriculture Minister Hamilton outlined Canada's plan for a World Food Bank before the FAO conference in Rome. Woodrow S. Lloyd succeeded T. C. Douglas as Premier of Saskatchewan. *Nov. 8*, John P. Robarts succeeded Leslie M. Frost as Premier of Ontario. *Nov. 9*, Plans for a Canadian Museum of History, to be completed by July 1, 1967, outlined by Prime Minister Diefenbaker. Ralph L. Erdman, Lethbridge, Alta., awarded world championship wheat title at the Royal Agricultural Winter Fair, Toronto; title for rye went to Harry N. Gorsline of Demorestville, Ont.; for oats to Devos Brothers of Bruxelles, Man; for potatoes to A. R. Chorney of East Selkirk, Man; and for flax to John E. Cotton of Kentville, Man. *Nov. 16*, Franklin Arbuckle elected President of the Royal Canadian Academy of Arts. *Nov. 17*, Shirley Earley, Kerwood, Ont., won Queen's Guineas, the top prize for 4-H Club members, at the Royal Agricultural Winter Fair for her Aberdeen Angus steer. *Nov. 19*, Third assembly of the World Council of Churches opened in New Delhi, India. *Nov. 27*, President Arturo Frondizi and Mrs. Frondizi of Argentina arrived in Ottawa for a four-day state visit to Canada. *Nov. 28*, Marcel Cadieux, Deputy Under Secretary of State for External Affairs, elected to the International Law Commission, the first time Canada has been represented on the Commission.

December: *Dec. 2,* Winnipeg Blue Bombers won the Grey Cup, symbol of Canadian football supremacy, from Hamilton Tiger-Cats by a score of 21-14. *Dec. 4,* Dr. Marcel Chaput, Quebec separatist leader, resigned from Defence Research Board. *Dec. 7,* Announcement of the opening of a Bank of Montreal office in Tokyo in January, the first to be established in Japan by a Canadian bank. Change in terminology from "United Kingdom" to "Britain" or "British" to agree with usage in other countries announced by British spokesman in Ottawa. *Dec. 9,* Tanganyika became the 29th independent nation of Africa in a ceremony marking the end of British trusteeship, with full independence within the Commonwealth. *Dec. 12,* Remains of home of Madeleine de Verchères, one of French Canada's earliest heroines, at Ste. Anne de la Pêrade, Que., declared a historic site. Death of distinguished journalist Grant Dexter. *Dec. 13-15,* Annual meeting of foreign, defence and finance ministers of the 15-member countries of NATO held in Paris; Canada represented by Secretary of State for External Affairs Green, Minister of National Defence Harkness, Minister of Finance Fleming and others. *Dec. 19,* Her Majesty Queen Elizabeth and Prime Minister Diefenbaker held a telephone conversation inaugurating multi-purpose cable to carry voice, picture and teletype messages under the Atlantic, the first link in a new round-the-world Commonwealth cable. *Dec. 22,* Bruce Kidd of Toronto, 18-year-old middle-distance track star, chosen Canada's outstanding male athlete for 1961. *Dec. 23,* Agreement with China to sell \$71,000,000 worth of grain during the next 30 months signed. *Dec. 28,* Death of Senator Aurel Léger of Moncton, N.B.

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January: *Jan. 1,* International project to study earth's upper mantle initiated; Canadian scientists to participate. *Jan. 2,* Announcement of appointment by the National Research Council of a 14-member industrial advisory committee to encourage research in industry. *Jan. 8,* Announcement by Justice Minister Fulton of a special one-year study of juvenile delinquency. *Jan. 12,* Death of Rt. Hon. James (Jimmy) G. Gardiner, Lemberg, Sask., federal Minister of Agriculture for 22 years. *Jan. 12-13,* Meeting of Canadian and United States Cabinet Ministers in Joint Committee on Trade and Economic Affairs. *Jan. 15,* The RCMP's famous "Musical Ride" placed on a permanent, full-time basis. *Jan. 17-27,* First all-Canadian trade exhibition held in Africa at Lagos. *Jan. 20,* Governor General Vanier and Prime Minister Diefenbaker became life members of the National Press Club, the presentations taking place at the official opening of the Club's new quarters in Ottawa. *Jan. 22,* A one-third increase in federal grants to universities announced by Prime Minister Diefenbaker. *Jan. 23,* Announcement of increase of \$10 monthly in old age pensions, old age assistance, and pensions for blindness and disability. *Jan. 24,* Second report of the Royal Commission on Transportation tabled in the House of Commons with chief conclusion that competition, not government, should be the main price regulation in transportation. *Jan. 25,* Purchase of the Newfoundland Savings Bank by the Bank of Montreal announced.

February: *Feb. 6,* Death of Senator George H. Barbour of Charlottetown, P.E.I. The first grants of the National Advisory Council on Fitness and Amateur Sports given to the Canadian Wheelmen's Association to send seven cyclists to compete in France in July; to the Canadian Amateur Ski Association for a winter training program in Europe; and the Canadian Amateur Skating Association. Official opening of Ottawa's largest government building, the Surveys and Mapping

building of the Department of Mines and Technical Surveys, coinciding with annual meeting of the Canadian Institute of Surveying. *Feb. 9,* Senator John T. Haig of Winnipeg resigned from the Senate for health reasons. Canadian Ambassador to the United States Arnold Heeney awarded the Chubb Fellowship at Yale University, the first Canadian selected for this honour. *Feb. 10,* Paul Enock, Toronto, set world record for speedskating in international meet at Hamar, Norway. *Feb. 18,* Hazen Argue, Parliamentary leader of CCF-NDP Party, resigned after criticism of CCF-NDP policies. *Feb. 20,* John Glenn, Jr., United States astronaut in spacecraft *Friendship 7* circled the earth three times in four hours, 56 minutes. *Feb. 23,* Winners of the Governor General's Literary Awards for 1961 announced: the late Malcolm Lowry (fiction); T. A. Goudge (non-fiction); Robert Finch (poetry); Yves Theriault (fiction in French); and Jean Le Moyné (non-fiction in French).

March: *Mar. 1,* The EP Ranch, formerly owned by the Duke of Windsor, sold. *Mar. 2,* The Brotherhood of Locomotive Engineers concluded separate agreements with the CNR and CPR providing a total wage increase of 6½ p.c. for some 5,400 employees over a 3-year period; the agreements were signed after more than a year of negotiations and one week before the strike date. *Mar. 3,* Death of Senator Cairine Wilson, Canada's first woman Senator. *Mar. 6,* Electric power pylon near Riondel, B.C., destroyed by explosives placed by Sons of Freedom Doukhobors; nine persons arrested and convicted were sentenced May 10-11 to 15 years' imprisonment. *Mar. 13,* Death of Senator Arthur C. Hardy of Brockville, Ont., dean of the Upper House. *Mar. 14-17,* Maria and Otto Jelinek of Bronte, Ont., won the pairs title, Donald Jackson of Oshawa, Ont., won the men's singles title, and Wendy Griner of Toronto won second place in the women's singles competition at the World Figure Skating Championships held at Prague, Czechoslovakia. *Mar. 20,* Men's world curling championship won by the Regina team of Ernie Richardson in competitions held at Falkirk and Edinburgh, Scotland.

April: *Apr. 2,* Fiftieth anniversary of the first semi-annual meeting of the International Joint Commission celebrated in Washington, D.C. The 400-mile microwave system between Peace River, Alta., and Hay River, N.W.T., built jointly by Alberta Government Telephones and Canadian National Telecommunications, officially opened. *Apr. 3,* General A.G.L. McNaughton retired as Chairman of the Canadian Section, International Joint Commission. *Apr. 9,* Livingston Merchant, U.S. Ambassador to Canada, announced his resignation for personal reasons. Eleven-month strike of Canadian Pacific Railway employees at the Royal York Hotel in Toronto ended. *Apr. 17,* Canada elected to the UN Commission on Human Rights for a term of three years beginning Jan. 1, 1963. *Apr. 18,* General election date, June 18, announced in the House of Commons. *Apr. 19,* Expropriation of 154-acre "Lebreton Flats" area in west-central Ottawa by the National Capital Commission announced. *Apr. 22,* The Toronto Maple Leafs won the Stanley Cup, symbol of hockey supremacy. *Apr. 29,* Prime Minister Macmillan arrived in Ottawa for two days of talks with Prime Minister Diefenbaker and members of the Cabinet on the European Common Market and the Commonwealth.

May: *May 2,* The U.S. set off the first megaton explosion in a new series of atmospheric atomic tests at Christmas Island in the Pacific Ocean. The Canadian dollar officially pegged at 92.5 cents. *May 14,* His Royal Highness The Duke of Edinburgh's Second Commonwealth Study Conference opened in Montreal, attended by 300 delegates from all parts of the Commonwealth.

May 23, Boring of the first stretch of tunnel for Montreal's underground subway network begun. **May 24**, Malcolm Scott Carpenter, United States astronaut in *Aurora 7* spacecraft circled the earth three times. **May 28**, The Federal Government and the Province of Manitoba signed agreement *re* the construction of the \$63,200,000 Greater Winnipeg Floodway. **May 29**, The New York stock market suffered severe but brief decline, causing similar price drop on the Toronto and Montreal stock exchanges. **May 31**, Adolf Eichmann hanged in Tel Aviv for Nazi slaughter of 6,000,000 Jews. Plans announced for establishment of Ontario's 14th university, to be known as Trent University, at Peterborough, to begin operation September 1964.

June: June 5, Death of Jacques Greber, French architect who formulated Canada's National Capital Plan. **June 7**, Her Majesty Queen Elizabeth, the Queen Mother, arrived in Canada for a 10-day visit, during which she presented new colours to The Black Watch (Royal Highland Regiment) of which she is Colonel-in-Chief. **June 10**, The Princess Royal arrived in Canada for a 16-day tour; at a special convocation ceremony in Osgoode Hall **June 21**, the Princess Royal was elected an honorary bencher of the Law Society of Upper Canada, the first woman and the third member of the Royal Family to receive the honour. **June 11**, Preliminary hearing commenced against 72 members of Fraternal Council of Sons of Freedom Doukhobors, as a result of various incidents between 1958 and 1961; concluded Aug. 7 with dismissal of charges of conspiracy. **June 15**, Canada's first space vehicle—a 25-lb. instrument package containing, among other devices, a new type of radio telemetry transmitter—launched from Wallops Island, Va., U.S.A. **June 17**, Riot at St. Vincent de Paul Penitentiary in Montreal left six buildings gutted by fire and nine buildings heavily damaged; damage was estimated at between \$2,000,000 and \$3,000,000. **June 18**, Twenty-fifth general election; party standing (after deferred election in Stormont)—116 Progressive Conservative, 99 Liberal, 30 Social Credit, 18 New Democratic Party, 1 Liberal Labour and 1 Co-operative Commonwealth Federation—New Democratic Party. **June 24**, Emergency measures instigated to strengthen the national economy and protect the Canadian dollar. **June 25**, The Supreme Court of Canada ruled illegal the discharge by the Royal York Hotel, Toronto, of employees on strike called in compliance with the provisions of the Ontario Labour Relations Act; the Hotel had appealed the decision of the Ontario Court of Appeal.

July: July 1, Six-week festival commemorating the gold-rush era begun at Dawson, N.W.T. **July 1-Aug. 2**, Saskatchewan medical care plan brought into force; controversy between medical doctors and the provincial government *re* terms of the legislation ended when special session of the legislature passed amendments satisfactory to both sides. **July 7**, Death of Senator William R. Brunt of Hanover, Ont., deputy government leader in the Upper House. Death of Senator William M. Wall of Winnipeg, Man. **July 12**, The U.S. communications satellite *Telstar* placed in orbit permitting transmission of North American live television programs to Europe and European programs to North America; views of the stage production of *Macbeth* at Stratford Shakespearean Festival were transmitted from Canada. **July 19**, Death of Senator Henri Charles Bois of St. Bruno, Que. **July 23**, Fourteen nations, including Canada, signed agreements at Geneva guaranteeing the

neutrality and independence of the Southeast Asian kingdom of Laos. **July 25**, Death of Rt. Hon. Thibaudeau Rinfret, retired Chief Justice of Canada. **July 27**, Twenty-seven persons killed in crash of CPA Britannia aircraft at Honolulu. **July 29**, Death of Charles P. Hébert, Canadian Ambassador to The Netherlands, at The Hague. **July 30**, Announcement of agreement between Britain and Canada for purchase of 24,000,000 lb. of refined uranium, thereby extending the period of operations of Canadian uranium producers. **July 31**, Ontario, Saskatchewan and Alberta governments pledged care for children deformed by the drug thalidomide; Federal Government co-operation with the provinces announced Aug. 1. **July**, Justice T. G. Norris named to act as a one-man industrial commission of inquiry into shipping disruptions and labour strife on the Great Lakes; seven trade unions, the CLC, the St. Lawrence Seaway Authority and a large Toronto shipping line were invited to take part in the investigation ordered by the Federal Government following acts of violence and the prevention of a ship's passage through one of the Seaway canals.

August: Aug. 1, Motorcade of twelve automobiles, arranged by the Canadian Automobile Association to mark the completion of the Trans-Canada Highway, left St. John's, Nfld., on a one-month tour to Victoria, B.C.; the tour returned to Revelstoke, B.C., for official opening of highway on Sept. 3, by Prime Minister Diefenbaker. Ontario's Construction Safety Act 1961-62 came into effect making it the duty of every employer to take every reasonable precaution for the safety of his workmen and assigning the responsibility for enforcement to the municipality. **Aug. 2**, One hundredth anniversary of granting of charter to City of Victoria. Death of Mrs. Annie Pearson, mother of Hon. Lester B. Pearson, at Southampton, Ont. **Aug. 3**, Jamaica became an independent nation within the Commonwealth, ending 307 years of British rule. **Aug. 6-7**, The third conference of provincial premiers and officials held in Victoria; financial problems were the main topic of discussion. **Aug. 7**, Fifteen Chinese refugees arrived, the first members of the 100 families allowed into Canada from Hong Kong under a special immigration policy of the Federal Government. **Aug. 9**, The federal conciliation Board report recommending an hourly pay increase of 8 cents to 100,000 non-operating railway employees, plus one cent an hour for a job security fund made public; this was the first report of its kind to be unanimously accepted by the unions and the railway companies and broke new ground in railway labour relations by dealing with the job security factor. **Aug. 11-15**, U.S.S.R. spacecraft *Vostok III*, manned by Andrian Nikolayev, and *Vostok IV*, manned by Pavel Popovich, in double flight around the earth covering 64 orbits in 90 hours and 48 orbits in 70 hours, respectively. **Aug. 18**, Tercentary of founding of Placentia, Nfld. **Aug. 20-27**, Fifteenth anniversary of the formation of the Province of Manitoba. **Aug. 22**, One of TCA's first aircraft began a series of flights across Canada marking the airline's 25th anniversary. **Aug. 27**, Announcement of establishment of a federal Royal Commission to study the Canadian tax structure; Kenneth Carter, past chairman of the Canadian Tax Foundation, appointed chairman. **U.S. Mariner II** spacecraft launched toward the planet Venus. **Aug. 28**, Death of E. W. R. Steacie, President of the National Research Council, at Ottawa. **Aug. 31**, Trinidad and Tobago became an independent nation within the Commonwealth after 165 years as a British colony.

APPENDIX I

CONSTITUTION AND GOVERNMENT

Certain information given in Chapter II on Constitution and Government is brought up to the date of going to press (Sept. 30, 1962) in this Appendix.

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Cabinet changes were announced by the Prime Minister on Aug. 9, 1962, following the General Election of June 18, as follows:—

Members of the Eighteenth Ministry, as at Aug. 9, 1962

(According to precedence of Ministers)

Prime Minister.....	Rt. Hon. JOHN GEORGE Diefenbaker
Secretary of State for External Affairs.....	Hon. Howard Charles Green
Minister of Justice and Attorney General.....	Hon. Donald Methuen Fleming
Minister of Trade and Commerce.....	Hon. George Hees
Minister of Transport.....	Hon. Léon Balcer
Minister of Veterans Affairs.....	Hon. Gordon Churchill
Minister of Public Works.....	Hon. Edmund Davie Fulton
Minister of Finance and Receiver General.....	Hon. George Clyde Nowlan
Minister of National Defence.....	Hon. Douglas Scott Harkness
Postmaster General.....	Hon. Ellen Louks Fairclough
Minister of Fisheries.....	Hon. J. Angus MacLean
Minister of Labour.....	Hon. Michael Starr
Minister of National Health and Welfare.....	Hon. Jay Waldo Monteth
Minister of Agriculture.....	Hon. Francis Alvin George Hamilton
Minister of Defence Production.....	Hon. Raymond Joseph Michael O'Hurley
Associate Minister of National Defence.....	Hon. Joseph Pierre Albert Sévigny
Minister of Forestry and Minister of National Revenue.....	Hon. Hugh John Flemming
Minister of Northern Affairs and National Resources.....	Hon. Walter Dinsdale
Secretary of State of Canada.....	Hon. George Ernest Halpenny
Minister of Mines and Technical Surveys.....	Hon. Paul Martineau
Minister of Citizenship and Immigration.....	Hon. Richard Albert Bell
Minister without Portfolio.....	Hon. Malcolm Wallace McCutcheon

Page 57, Parliamentary Secretaries

The Parliamentary Secretaries appointed following the General Election of June 18 are listed in the Register of Official Appointments, p. 1176.

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Senate appointments from Jan. 31, 1962 to Sept. 30, 1962 are given in the Register of Official Appointments, p. 1176.

Pages 64-69, Table 10

Electoral Districts, Votes Polled and Names of Members of the House of Commons as Elected at the Twenty-Fifth General Election, June 18, 1962

NOTE.—Party affiliations are unofficial. P.C.=Progressive Conservative; Lib.=Liberal; S.C.=Social Credit; Lib. Lab.=Liberal Labour; N.D.P.=New Democratic Party; C.C.F.-N.D.P.=Co-operative Commonwealth Federation-New Democratic Party. Party Standing: P.C. 116, Lib. 99, S.C. 30, N.D.P. 18, Lib. Lab. 1, C.C.F.-N.D.P. 1.

Province and Electoral District	Total Votes Polled	Votes Polled by Member	Name of Member	Party Affilia- tion
Newfoundland— (7 members)				
Bonavista-Twillingate.....	15,458	11,530	Hon. J. W. PICKERSGILL.....	Lib.
Burin-Burgeo.....	15,804	12,533	C. W. CARTER.....	Lib.
Grand Falls-White Bay-Labrador.....	24,753	16,153	C. R. GRANGER.....	Lib.
Humber-St. George's.....	25,155	12,771	H. M. BATTEN.....	Lib.
St. John's East.....	28,627	14,821	J. A. McGRATH.....	P.C.
St. John's West.....	25,761	12,650	R. CASHIN.....	Lib.
Trinity-Conception.....	19,135	12,106	J. R. TUCKER.....	Lib.
Prince Edward Island— (4 members)				
Kings.....	9,457	4,550	MARGARET M. MACDONALD.....	P.C.
Prince.....	18,758	9,133	O. H. PHILLIPS.....	P.C.
Queens.....	45,286	12,117	Hon. J. A. MacLEAN.....	P.C.
		11,580	H. MACQUARRIE.....	P.C.
Nova Scotia— (12 members)				
Antigonish-Guysborough.....	12,879	6,296	J. B. STEWART.....	Lib.
Cape Breton North and Victoria.....	22,117	11,048	R. MUIR.....	P.C.
Cape Breton South.....	39,122	17,409	M. V. MACINNIS.....	N.D.P.
Colchester-Hants.....	29,822	14,128	C. F. KENNEDY.....	P.C.
Cumberland.....	18,943	9,524	R. C. COATES.....	P.C.
Digby-Annapolis-Kings.....	33,625	17,499	Hon. G. C. NOWLAN.....	P.C.
Halifax.....	181,278	42,929	R. McCLEAVE.....	P.C.
		41,789	E. MORRIS.....	P.C.
Inverness-Richmond.....	16,578	8,331	A. J. MacEACHEN.....	Lib.
Pictou.....	22,132	10,837	R. MacEWAN.....	P.C.
Queens-Lunenburg.....	24,120	12,847	L. R. CROUSE.....	P.C.
Shelburne-Yarmouth-Clare.....	22,779	11,162	F. F. JEGERE.....	P.C.
New Brunswick— (10 members)				
Charlotte.....	12,212	6,155	A. M. A. McLEAN.....	Lib.
Gloucester.....	23,933	13,519	H.-J. ROBICHAUD.....	Lib.
Kent.....	10,893	5,514	G. CROSSMAN.....	Lib.
Northumberland-Miramichi.....	19,099	9,899	G. R. McWILLIAM.....	Lib.
Restigouche-Madawaska.....	29,918	13,525	J.-E. DUBÉ.....	Lib.
Royal.....	18,603	9,805	G. FAIRWEATHER.....	P.C.
Saint John-Albert.....	44,063	22,586	T. M. BELL.....	P.C.
Victoria-Carleton.....	18,341	10,439	Hon. H. J. FLEMMING.....	P.C.
Westmorland.....	43,215	18,334	S. H. RIDEOUT.....	Lib.
York-Sunbury.....	31,716	15,255	J. C. MacRAE.....	P.C.
Quebec— (75 members)				
Argenteuil-Deux-Montagnes.....	28,185	11,761	V. DROUIN.....	Lib.
Beauce.....	26,127	15,230	G. PERRON.....	S.C.
Beauharnois-Salaberry.....	31,186	13,290	G. LAMIEL.....	Lib.
Bellechasse.....	13,082	5,092	B. DUMONT.....	S.C.
Berthier-Maskinongé-Delanaudière.....	20,452	9,211	R. PAUL.....	P.C.
Bonaventure.....	17,036	7,559	A. BÉCHARD.....	Lib.
Brome-Missisquoi.....	19,491	8,074	H. GRAFFEY.....	P.C.
Chamby-Rouville.....	25,200	11,813	B. PILON.....	Lib.
Champlain.....	27,516	9,918	J.-P. MATTE.....	Lib.
Chapleau.....	27,070	15,430	G. LAPRISE.....	S.C.
Charlevoix.....	20,602	8,652	L.-P.-A. BÉLANGER.....	S.C.
Châteauguay-Huntingdon-Laprairie.....	22,270	10,305	J. BOUCHER.....	Lib.
Chicoutimi.....	33,095	16,566	M. CÔTÉ.....	S.C.
Compton-Frontenac.....	17,321	8,164	H. LATULIPPE.....	S.C.

Electoral Districts, Votes Polled and Names of Members of the House of Commons as Elected at the Twenty-Fifth General Election, June 18, 1962—continued

Province and Electoral District	Total Votes Polled	Votes Polled by Member	Name of Member	Party Affilia- tion
Quebec—concluded				
Dorchester.....	15,385	7,701	P.-A. BOUTIN.....	S.C.
Drummond-Arthabaska.....	38,270	17,597	D. OUELLET.....	S.C.
Gaspé.....	23,882	10,530	R.-L. ENGLISH.....	P.C.
Gatineau.....	24,346	10,135	R. LEBUC.....	Lib.
Hull.....	37,660	17,932	A. CARON.....	Lib.
Îles-de-la-Madeleine.....	5,089	2,765	M. SAUVÉ.....	Lib.
Joliette-L'Assomption-Montcalm.....	37,290	17,600	J.-J. PIGEON.....	P.C.
Kamouraska.....	12,626	4,550	C.-E. DIONNE.....	S.C.
Labelle.....	18,352	6,218	G. CLERMONT.....	Lib.
Lac-Saint-Jean.....	19,213	10,743	M. LESSARD.....	S.C.
Lapointe.....	30,257	16,202	G. GRÉGOIRE.....	S.C.
Lévis.....	24,127	11,508	J.-A. ROY.....	S.C.
Longueuil.....	40,331	17,578	Hon. P. SÉVIGNY.....	P.C.
Lotbinière.....	16,174	6,176	Hon. R. O'HURLEY.....	P.C.
Matapédia-Matane.....	23,268	8,484	J.-A. BELZILE.....	P.C.
Mégantic.....	29,070	15,395	R. LANGLOIS.....	S.C.
Montmagny-L'Islet.....	16,463	7,629	J.-P. COOK.....	S.C.
Nicolet-Yamaska.....	19,698	8,861	C. VINCENT.....	P.C.
Pontiac-Témiscamingue.....	17,314	6,137	P. MARTINEAU.....	P.C.
Portneuf.....	22,189	12,089	J.-L. FRENETTE.....	S.C.
Quebec East.....	45,428	22,445	R. BEAULÉ.....	S.C.
Quebec South.....	29,123	12,463	J.-C. CANTIN.....	Lib.
Quebec West.....	27,906	16,169	L. PLOURDE.....	S.C.
Quebec-Montmorency.....	61,481	35,499	G. MARCOUX.....	S.C.
Richelieu-Verchères.....	27,031	14,658	L.-J.-L. CARDIN.....	Lib.
Richmond-Wolfe.....	24,281	11,816	A. BERNIER.....	S.C.
Rimouski.....	28,761	9,955	G. LEGARÉ.....	Lib.
Rivière-du-Loup-Témiscouata.....	21,622	8,058	P. GAGNON.....	S.C.
Roberval.....	21,058	11,180	C.-A. GAUTHIER.....	P.C.
Saint-Hyacinthe-Bagot.....	27,411	12,586	T. RICARD.....	S.C.
Saint-Jean-Iberville-Napierville.....	27,686	14,157	Y. DUPUIS.....	Lib.
Saint-Maurice-Lafèche.....	36,609	20,225	G. LAMY.....	S.C.
Saguenay.....	32,863	15,977	L. MALTAIS.....	S.C.
Shefford.....	29,775	12,386	G. RONDEAU.....	S.C.
Sherbrooke.....	33,100	16,673	G. CHAPDELAINÉ.....	S.C.
Steinbock.....	19,549	7,982	R. LÉTOURNEAU.....	P.C.
Terrebonne.....	40,079	15,547	L. CADIEUX.....	Lib.
Trois-Rivières.....	32,156	15,495	Hon. L. BALCER.....	P.C.
Vaudreuil-Soulanges.....	17,808	8,392	J.-M. BOURBONNAIS.....	P.C.
Villeneuve.....	31,547	21,022	R. CAQUETTE.....	S.C.
Island of Montreal and Île Jésus—				
Cartier.....	13,405	6,397	L. D. CRESTOHL.....	Lib.
Dollard.....	39,869	21,802	G. ROULEAU.....	Lib.
Hochelaga.....	26,696	13,220	R. FUDÉS.....	Lib.
Jacques-Cartier-Lasalle.....	71,055	34,262	R. ROCK.....	Lib.
Lafontaine.....	20,937	10,000	G.-C. LACHANCE.....	Lib.
Laurier.....	16,769	8,255	Hon. L. CHEVRIER.....	Lib.
Laval.....	74,414	36,248	J. ROCHON.....	Lib.
Maisonneuve-Rosemont.....	39,304	17,489	J. P. DESCHATELÉTS.....	Lib.
Mercier.....	71,017	28,898	P. BOULANGER.....	Lib.
Mount Royal.....	51,177	31,654	A. MACNAUGHTON.....	Lib.
Notre-Dame-de-Grâce.....	45,971	22,080	E. T. ASSELIN.....	Lib.
Outremont-Saint-Jean.....	21,961	10,124	R. BOURQUE.....	Lib.
Papineau.....	29,872	16,062	A. MEUNIER.....	Lib.
St. Ann.....	13,520	7,737	G. LOISELLE.....	Lib.
Saint-Antoine-Westmount.....	27,349	13,973	C. M. DRURY.....	Lib.
Saint-Denis.....	25,026	11,728	A. DENIS.....	Lib.
Saint-Henri.....	26,986	13,423	H.-Pit LESSARD.....	Lib.
Saint-Jacques.....	19,299	7,611	M. RINFRET.....	Lib.
St. Laurence-St. George.....	14,189	7,227	J. TURNER.....	Lib.
Sainte-Marie.....	19,423	8,748	G.-J. VALADE.....	P.C.
Verdun.....	34,384	13,858	B. S. MACKASEY.....	Lib.
Ontario—				
(85 members)				
Algoma East.....	21,002	11,920	Hon. L. B. PEARSON.....	Lib.
Algoma West.....	32,142	13,832	G. E. NIXON.....	Lib.
Brantford.....	25,534	11,475	J. E. BROWN.....	Lib.
Brant-Haldimand.....	25,998	11,278	L. T. PENNELL.....	Lib.
Bruce.....	14,849	7,604	A. ROBINSON.....	P.C.

Electoral Districts, Votes Polled and Names of Members of the House of Commons as Elected at the Twenty-Fifth General Election, June 18, 1962—continued

Province and Electoral District	Total Votes Polled	Votes Polled by Member	Name of Member	Party Affilia- tion
Ontario—continued				
Carleton.....	62,758	32,125	R. A. BELL.....	P.C.
Cochrane.....	18,552	7,969	J. A. HABEL.....	Lib.
Dufferin-Simcoe.....	19,803	10,532	Hon. W. E. ROWE.....	P.C.
Durham.....	18,239	7,971	R. C. HONEY.....	Lib.
Elgin.....	27,878	12,569	J. A. MCBAIN.....	P.C.
Essex East.....	43,467	24,969	Hon. P. MARTIN.....	Lib.
Essex South.....	23,860	11,397	E. F. WHELAN.....	Lib.
Essex West.....	40,664	18,158	H. GRAY.....	Lib.
Fort William.....	25,587	12,229	H. BADANAI.....	Lib.
Glengarry-Prescott.....	20,634	11,043	V. ETHIER.....	Lib.
Grenville-Dundas.....	17,362	10,159	JEAN CASSELMAN.....	P.C.
Grey-Bruce.....	18,400	10,514	E. A. WINKLER.....	P.C.
Grey North.....	19,135	9,890	P. V. NOBLE.....	P.C.
Halton.....	46,024	18,556	H. C. HARLEY.....	Lib.
Hamilton East.....	28,224	12,006	J. C. MUNRO.....	Lib.
Hamilton South.....	50,642	17,392	R. M. T. McDONALD.....	P.C.
Hamilton West.....	30,156	12,794	Hon. ELLEN FAIRCLOUGH.....	P.C.
Hastings-Frontenac.....	20,870	12,360	R. WEBB.....	P.C.
Hastings South.....	31,459	15,529	L. GRILLS.....	P.C.
Huron.....	22,532	11,562	E. CARDIFF.....	P.C.
Kenora-Rainy River.....	27,924	15,412	W. M. BENEDICKSON.....	Lib. Lab.
Kent.....	30,808	15,362	S. L. CLUNIS.....	Lib.
Kingston.....	32,504	16,828	E. J. BENSON.....	Lib.
Lambton-Kent.....	19,732	9,874	J. W. BURGESS.....	Lib.
Lambton West.....	32,594	14,125	W. F. FOY.....	Lib.
Lanark.....	18,511	10,462	G. H. DOUCETT.....	P.C.
Leeds.....	22,997	12,071	J. R. MATHESON.....	Lib.
Lincoln.....	54,758	23,386	J. C. McNULTY.....	Lib.
London.....	31,685	16,096	Hon. G. E. HALPENNY.....	P.C.
Middlesex East.....	40,984	19,003	C. E. MILLAR.....	P.C.
Middlesex West.....	20,249	10,178	W. H. A. THOMAS.....	P.C.
Niagara Falls.....	31,506	18,529	JUDY LA MARSH.....	Lib.
Nickel Belt.....	29,190	16,440	O. J. GODIN.....	Lib.
Nipissing.....	27,753	17,164	J. GARLAND.....	Lib.
Norfolk.....	21,995	10,882	J. M. ROXBURGH.....	Lib.
Northumberland.....	21,177	10,472	H. BRADLEY.....	P.C.
Ontario.....	54,917	23,158	Hon. M. STARR.....	P.C.
Ottawa East.....	24,790	15,930	J.-T. RICHARD.....	Lib.
Ottawa West.....	30,977	16,935	G. MCILRAITH.....	Lib.
Oxford.....	32,073	18,352	W. NESBITT.....	P.C.
Parry Sound-Muskoka.....	25,797	13,135	G. H. AIKEN.....	P.C.
Peel.....	49,978	21,222	B. BEER.....	Lib.
Perth.....	25,909	15,108	Hon. J. W. MONTEITH.....	P.C.
Peterborough.....	32,210	12,185	F. STENSON.....	P.C.
Port Arthur.....	35,366	13,437	D. M. FISHER.....	N. D. P.
Prince Edward-Lennox.....	17,513	9,094	A. D. ALKENBRACK.....	P.C.
Renfrew North.....	23,113	11,313	J. M. FORGIE.....	Lib.
Renfrew South.....	17,773	8,732	J. W. BASKIN.....	P.C.
Russell.....	50,237	29,322	P. TARDIF.....	Lib.
Simcoe East.....	24,512	12,835	P. B. RYHARD.....	P.C.
Simcoe North.....	20,374	11,729	H. SMITH.....	P.C.
Stormont.....	25,096	11,363	L. LAMOUREUX.....	Lib.
Sudbury.....	30,972	17,628	R. MITCHELL.....	Lib.
Timiskaming.....	21,885	7,055	A. PETERS.....	N. D. P.
Timmins.....	19,959	8,834	M. MARTIN.....	N. D. P.
Victoria.....	23,191	12,555	C. W. HODGSON.....	P.C.
Waterloo North.....	48,429	21,262	O. W. M. WEICHEL.....	P.C.
Waterloo South.....	27,761	11,648	G. CHAPLIN.....	P.C.
Welland.....	37,578	17,614	W. H. McMILLAN.....	Lib.
Wellington-Huron.....	15,535	7,455	M. HOWE.....	P.C.
Wellington South.....	27,241	11,345	A. D. HALES.....	P.C.
Wentworth.....	41,806	17,050	J. R. SAMS.....	P.C.
York Centre.....	80,927	30,409	J. E. WALKER.....	Lib.
York East.....	45,773	16,963	S. OTTO.....	Lib.
York-Humber.....	43,079	15,526	R. B. COWAN.....	Lib.
York North.....	44,089	18,094	J. ADDISON.....	Lib.
York-Scarborough.....	123,143	49,643	F. MCGEE.....	P.C.
York South.....	47,919	19,014	D. LEWIS.....	N. D. P.
York West.....	74,226	31,324	L. KELLY.....	Lib.

¹ Election deferred to July 16, 1962.

Electoral Districts, Votes Polled and Names of Members of the House of Commons as Elected at the Twenty-Fifth General Election, June 18, 1962—continued

Province and Electoral District	Total Votes Polled	Votes Polled by Member	Name of Member	Party Affilia- tion
Ontario—concluded				
City of Toronto—				
Broadview.....	22,236	8,929	Hon. G. HEES.....	P.C.
Danforth.....	40,429	14,029	R. SCOTT.....	N.D.P.
Davenport.....	21,656	9,101	W. L. GORDON.....	Lib.
Eglinton.....	41,328	18,668	Hon. D. M. FLEMING.....	P.C.
Greenwood.....	24,747	9,238	A. BREWIN.....	N.D.P.
High Park.....	25,903	11,260	A. J. P. CAMERON.....	Lib.
Parkdale.....	26,004	10,780	S. HAJDAS.....	Lib.
Rosedale.....	24,159	10,192	D. S. MACDONALD.....	Lib.
St. Paul's.....	26,933	11,140	I. G. WAHN.....	Lib.
Spadina.....	27,322	11,982	P. RYAN.....	Lib.
Trinity.....	20,857	9,609	P. HELLER.....	Lib.
Manitoba—				
(14 members)				
Brandon-Souris.....	29,741	17,811	Hon. W. G. DINSDALE.....	P.C.
Churchill.....	21,559	10,943	R. SIMPSON.....	P.C.
Dauphin.....	18,197	7,158	R. E. FORBES.....	P.C.
Lisgar.....	18,825	9,352	G. MUIR.....	P.C.
Marquette.....	21,815	11,361	N. MANDELKUK.....	P.C.
Portage-Neepawa.....	23,643	11,031	S. J. ENNS.....	P.C.
Provencher.....	14,376	6,214	W. H. JORGENSEN.....	P.C.
St. Boniface.....	32,121	12,084	R.-J. TELLETT.....	Lib.
Selkirk.....	20,478	8,797	E. STEFANSON.....	P.C.
Springfield.....	20,126	8,052	J. SLOAN.....	P.C.
Winnipeg North.....	60,410	18,236	D. ORLIKOW.....	N.D.P.
Winnipeg North Centre.....	29,407	12,797	S. H. KNOWLES.....	N.D.P.
Winnipeg South.....	53,382	21,753	G. CHOWN.....	P.C.
Winnipeg South Centre.....	38,778	16,547	Hon. G. CHURCHILL.....	P.C.
Saskatchewan—				
(17 members)				
Assiniboia.....	21,393	7,739	H. ARGUE.....	Lib.
Humboldt-Melfort-Tisdale.....	22,252	11,487	R. RAPP.....	P.C.
Kindersley.....	22,243	9,170	R. L. HANBIDGE.....	P.C.
Mackenzie.....	19,413	9,457	S. J. KORCHINSKI.....	P.C.
Meadow Lake.....	14,699	7,587	B. CADIEU.....	P.C.
Melville.....	19,537	8,520	J. N. ORMISTON.....	P.C.
Moose Jaw-Lake Centre.....	37,760	19,556	J. E. PASCOE.....	P.C.
Moose Mountain.....	20,521	8,705	R. R. SOUTHAM.....	P.C.
Prince Albert.....	25,997	18,276	Rt. Hon. J. G. DIEFENBAKER.....	P.C.
Qu'Appelle.....	18,383	10,680	Hon. A. HAMILTON.....	P.C.
Regina City.....	44,235	22,164	K. MORE.....	P.C.
Rosetown-Biggar.....	22,333	11,720	C. O. COOPER.....	P.C.
Rosthern.....	19,990	10,626	E. NASSERDEN.....	P.C.
Saskatoon.....	45,611	25,341	H. F. JONES.....	P.C.
Swift Current-Maple Creek.....	26,562	10,814	J. MCINTOSH.....	P.C.
The Battlefords.....	22,117	11,740	A. R. HORNER.....	P.C.
Yorkton.....	23,354	10,202	G. D. CLANCY.....	P.C.
Alberta—				
(17 members)				
Acadia.....	19,804	8,440	J. H. HORNER.....	P.C.
Athabasca.....	21,401	9,678	J. BIGG.....	P.C.
Battle River-Camrose.....	24,267	12,883	C. S. SMALLWOOD.....	P.C.
Bow River.....	23,266	10,729	E. N. WOOLLIAMS.....	P.C.
Calgary North.....	50,777	22,446	Hon. D. S. HARKNESS.....	P.C.
Calgary South.....	47,636	21,911	A. R. SMITH.....	P.C.
Edmonton East.....	28,006	9,312	W. SKOREYKO.....	P.C.
Edmonton-Strathcona.....	46,975	16,030	T. NUGENT.....	P.C.
Edmonton West.....	55,035	19,681	M. LAMBERT.....	P.C.
Jasper-Edson.....	25,695	12,371	H. M. HORNER.....	P.C.
Lethbridge.....	25,448	11,105	D. R. GUNDLOCK.....	P.C.
Macleod.....	21,095	9,605	L. E. KINT.....	P.C.
Medicine Hat.....	25,427	10,453	H. A. B. OLSON.....	S.C.
Peace River.....	27,008	12,897	G. BALDWIN.....	P.C.
Red Deer.....	24,909	12,645	R. N. THOMPSON.....	S.C.
Vegreville.....	18,595	9,710	F. J. W. FANE.....	P.C.
Wetaskiwin.....	20,389	9,204	H. A. MOORE.....	P.C.

Electoral Districts, Votes Polled and Names of Members of the House of Commons as Elected at the Twenty-Fifth General Election, June 18, 1962—concluded

Province and Electoral District	Total Votes Polled	Votes Polled by Member	Name of Member	Party Affilia- tion
British Columbia—				
(22 members)				
Burnaby-Coquitlam.....	38,462	19,050	E. REGIER ¹	N.D.P.
Burnaby-Richmond.....	40,771	15,620	R. W. B. PRITTE.....	N.D.P.
Cariboo.....	27,958	8,435	B. R. LEBOE.....	S.C.
Coast-Capilano.....	51,434	23,583	J. DAVIS.....	Lib.
Comox-Alberni.....	28,726	10,474	T. S. BARNETT.....	N.D.P.
Esquimalt-Saanich.....	33,426	12,612	G. L. CHATTERTON.....	P.C.
Fraser Valley.....	36,090	9,970	A. B. PATTERSON.....	S.C.
Kamloops.....	26,447	11,311	Hon. E. D. FULTON.....	P.C.
Kootenay East.....	17,301	5,414	J. BYRNE.....	Lib.
Kootenay West.....	22,721	8,294	H. W. HERRIDGE.....	N.D.P.
Nanaimo-Cowichan-The Islands.....	26,511	11,152	C. CAMERON.....	N.D.P.
New Westminster.....	61,127	23,757	B. MATHER.....	N.D.P.
Okanagan Boundary.....	29,115	9,069	D. PUGH.....	P.C.
Okanagan-Revelstoke.....	15,584	5,268	S. A. FLEMING.....	P.C.
Skeena.....	18,580	10,946	F. HOWARD.....	N.D.P.
Vancouver-Burrard.....	29,455	9,173	T. BERGER.....	N.D.P.
Vancouver Centre.....	21,845	7,658	J. R. NICHOLSON.....	Lib.
Vancouver East.....	22,956	12,279	H. E. WINCH.....	C.C.F.- N.D.P.
Vancouver-Kingsway.....	29,045	13,837	A. A. WEBSTER.....	N.D.P.
Vancouver Quadra.....	33,528	15,155	Hon. H. C. GREEN.....	P.C.
Vancouver South.....	40,508	14,566	A. LAING.....	Lib.
Victoria.....	40,122	14,333	A. D. MCPHILLIPS.....	P.C.
Yukon Territory—				
(1 member)				
Yukon.....	5,978	3,250	E. NIELSEN.....	P.C.
Northwest Territories—				
(1 member)				
Mackenzie River ²	8,501	3,860	I. J. TIBBIE HARDIE.....	Lib.

¹ Resigned Aug. 20, 1962. ² Name of electoral district changed to Northwest Territories by SC 1962, c. 17.

Pages 92-109, Administrative Functions of the Federal Government

There were no important changes made in the functions of the various departments of government and the special boards and commissions between the time the material on the above pages was prepared (Jan. 31, 1962) and the date of going to press with this volume (Sept. 30, 1962).

APPENDIX II

POPULATION

As stated on p. 145 of this volume, summary population data resulting from the 1961 Census, available at Sept. 30, 1962, are given in this Appendix. A short review of population growth during the present century is included, followed by tables showing 1961 rural and urban classifications, populations of incorporated urban centres and metropolitan areas, age and sex distribution, origins, religious denominations and language and mother tongues. Because of limitations of space, these tables are presented without textual comment.

Corresponding figures for previous census years are available from earlier editions of the Canada Year Book and from published census bulletins (see pp. 145-146).

Population Growth.—Canada's population stood at 18,238,000 in 1961 as against 10,377,000 in 1931 and 5,371,000 in 1901. In the first decade of the century, the gain of 34 p.c. was greater than in any censal period up to 1961. Growth was associated with the opening up of the West for settlement and massive immigration from overseas. During the 1901-11 period, about 1,760,000 immigrants entered the country and natural increase amounted to an estimated 1,000,000. As the total increase in population was 1,835,328, it is evident that there was substantial emigration during the period. In the 1911-21 period, population growth dropped to 22 p.c. Military losses in the First World War and losses during the influenza epidemic, which together amounted to about 120,000, were a factor in this decline. Although the flow of immigrants was reduced during the war years, it had been very heavy immediately preceding the War, so that the total number for the period (1,612,000) was very close to that for the previous censal period. However, emigration was also extremely high and the increase in population amounted to 1,581,306, representing 2 p.c. per annum compared with 3 p.c. in the 1901-11 period.

In the decade 1921-31, the rate of increase dropped to 18 p.c. Immigration fell to 1,200,000 and emigration was estimated at 1,000,000. Thus the increase in population, which amounted to 1,588,837, was only 229,000 greater than the natural increase. A feature of this period was the rapid growth of population in Western Canada, partly the result of immigration and partly the result of an influx of people from Eastern Canada. During 1931-41, the population increase was just under 11 p.c. During the depressed conditions of the 1930's, marriage and birth rates were significantly lower and only 150,000 immigrants came to Canada, although, in addition, 75,000 Canadians returned from the United States. Emigration was also much lower than in the previous decades, amounting to an estimated 250,000. Natural increase was only 1,220,000, the crude birth rate falling from 27 per thousand of the population in the 1921-25 period to 24 per thousand in the succeeding four-year period and to 20 per thousand during much of the 1931-41 decade. During 1941-51, population was restored to pre-depression levels. Excluding Newfoundland which became part of Canada in 1949, it amounted to 19 p.c.; including Newfoundland it was 22 p.c. Much of the increase took place in the second half of the decade, reflecting heavy postwar immigration and a sharp rise in the marriage and birth rates.

In the 1951-61 period, the population growth rate at 30.2 p.c. came close to approaching the extremely high rate of the first decade of the century. However, the two periods contrast in many ways. In the early period there was a wider dispersal of population increases as whole regions across the continent were opened up; in the recent period there was a concentration of growth in urban communities although some spreading of population into newly developed northern areas took place. Natural increase accounted for about 75 p.c. of the growth. While there was some decline in the death rate, the trend of natural increase reflected very closely that of the crude birth rate which began to rise during the War and remained high throughout the period. Net immigration accounted for the remainder of the increase; during the decade, 1,542,853 immigrants entered the

country, more than double the estimated emigration. While all provinces gained in population during 1951-61, the rates of increase varied widely. The greatest increases resulted from a combination of natural increase and net migration which in the two large provinces of Central Canada and the two most westerly provinces accounted for over 87 p.c. of the total natural increase. In contrast, increases in the other six provinces were entirely accounted for by natural increase.

1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Decennial Census Years 1901-61

NOTE.—Populations for the decennial census years 1871, 1881 and 1891 are given in the 1956 Year Book, p. 149. The populations of the Prairie Provinces in 1906, 1916, 1926, 1936 and 1946 will be found in the 1951 edition, p. 131, and census populations for 1956 in the 1961 edition, p. 146.

Province or Territory	1901	1911	1921	1931	1941	1951	1961
NUMERICAL DISTRIBUTION							
Nfld.	1	1	1	1	1	361,416	457,853
P.E.I.	103,259	93,728	88,615	88,038	95,047	98,429	104,629
N.S.	459,574	492,338	523,837	512,846	577,962	642,584	737,007
N.B.	331,120	351,889	387,876	408,219	457,401	515,697	597,936
Que.	1,648,898	2,005,776	2,360,510	2,874,662	3,331,882	4,055,681	5,259,211
Ont.	2,182,947	2,527,292	2,933,682	3,431,683	3,787,655	4,597,542	6,236,092
Man.	255,211	461,394	610,118	700,139	729,744	776,541	921,686
Sask.	91,279	492,432	757,510	921,785	895,992	831,728	925,181
Alta.	73,022	374,295	588,454	731,605	796,169	939,501	1,331,944
B.C.	178,657	392,480	524,582	694,263	817,861	1,165,210	1,629,082
Y.T.	27,219	8,512	4,157	4,230	4,914	9,096	14,628
N.W.T.	20,129	6,507	8,143	9,316	12,028	16,004	22,998
Canada	5,371,315	7,206,643	8,787,949¹	10,376,786	11,506,655	14,009,429	18,238,247
PERCENTAGE CHANGE FROM PRECEDING CENSUS							
Nfld.	1	1	1	1	1	1	10.3
P.E.I.	-5.3	-9.2	-5.5	-0.7	8.0	3.6	5.4
N.S.	2.0	7.1	6.4	-2.1	12.7	11.2	6.1
N.B.	3.1	6.3	10.2	5.2	12.0	12.7	7.8
Que.	10.8	21.6	17.7	21.8	15.9	21.7	13.6
Ont.	3.2	15.8	16.1	17.0	10.4	21.4	15.4
Man.	67.3	80.8	32.2	14.8	4.2	6.4	8.4
Sask.	—	439.5	53.8	21.7	-2.8	-7.2	5.1
Alta.	—	412.6	57.2	24.3	8.8	18.0	18.6
B.C.	82.0	119.7	33.7	32.3	17.8	42.5	16.5
Y.T.	—	-68.7	-51.2	1.8	16.2	85.1	20.0
N.W.T.	-79.7	-67.7	25.1	14.4	29.1	33.1	19.1
Canada	11.1	34.2	21.9	18.1	10.9	21.8	13.4

¹ Populations of Newfoundland (not part of Canada until 1949) were: 1901, 220,984; 1911, 242,619; 1921, 263,033; 1931, 281,500 (estimated); 1941, 303,309 (estimated); and 1945, 321,819. ² Includes 485 members of the Royal Canadian Navy recorded separately in 1921.

2.—Factors in the Growth of Population, 1951-61

Province or Territory	Population 1951 Census	Births	Deaths	Natural Increase	Immigration	Actual Increase	Net Migration	Population 1961 Census
	No.	No.	No.	No.	No.	No.	No.	No.
Nfld.	361,416	141,165	30,169	110,996	4,200	96,437	-14,559	457,853
P.E.I.	98,429	26,990	9,369	17,621	1,451	6,200	-11,421	104,629
N.S.	642,584	187,571	59,278	128,293	19,148	94,423	-33,870	737,007
N.B.	515,697	165,299	45,838	119,461	9,718	82,239	-37,222	597,936
Que.	4,055,681	1,348,440	350,140	998,300	325,329	1,203,530	205,230	5,259,211
Ont.	4,597,542	1,426,211	472,718	953,493	817,292	1,638,550	685,057	6,236,092
Man.	776,541	220,016	70,326	149,690	66,344	145,145	-4,545	921,686
Sask.	831,728	238,998	66,674	172,324	30,715	93,453	-78,871	925,181
Alta.	939,501	345,024	79,830	265,194	112,520	392,443	127,249	1,331,944
B.C.	1,165,210	355,737	131,945	223,792	155,052	463,872	240,080	1,629,082
Y.T. and N.W.T.	25,100	12,889	3,855	9,034	1,084	12,526	3,492	37,626
Canada	14,009,429	4,468,340	1,320,142	3,148,198	1,542,853	4,228,818	1,080,620	18,238,247

3.—Rural Population classified by Farm and Non-farm, and Urban Population classified by Size Group, by Province, Census 1961

Province or Territory	Rural			Urban Size Groups				
	Farm ¹	Non-farm	Total	1,000 to 9,999	10,000 to 29,999	30,000 to 99,999	100,000 or Over	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Nfld.....	9,077	216,756	225,833	98,614	48,214	85,192	—	232,020
P.E.I.....	34,514	36,206	70,720	15,591	18,318	—	—	33,909
N.S.....	56,832	279,663	336,495	75,163	49,065	—	276,284	400,512
N.B.....	62,265	257,658	319,923	80,287	61,815	135,911	—	278,013
Que.....	564,826	787,981	1,352,807	606,355	277,549	384,628	2,637,872	3,906,404
Ont.....	505,699	906,864	1,412,563	631,870	297,834	934,870	2,958,955	4,823,529
Man.....	171,472	161,407	332,879	71,995	51,100	—	465,712	588,807
Sask.....	304,672	222,418	527,090	109,076	48,142	128,732	112,141	398,091
Alta.....	285,823	202,910	488,733	158,319	44,096	35,454	605,342	843,211
B.C.....	77,540	369,617	447,157	161,256	152,978	—	867,691	1,181,925
Y.T.....	47	9,550	9,597	5,031	—	—	—	5,031
N.W.T.....	18	14,042	14,060	8,938	—	—	—	8,938
Canada.....	2,072,785	3,465,072	5,537,857	2,022,495	1,049,111	1,704,787	7,923,997	12,700,390

¹ Exclusive of 71,469 persons living on farms in localities classed as urban.

4.—Incorporated Cities with Populations of Over 30,000, Census 1961

City and Province	Year of Incorporation as City	Population	City and Province	Year of Incorporation as City	Population
		No.			No.
Belleville, Ont.....	1877	30,655	Ottawa, Ont.....	1854	268,206
Brantford, Ont.....	1877	55,201	Outremont, Que.....	1915	30,753
Burlington, Ont. (town)....	1915	47,008	Peterborough, Ont.....	1905	47,185
Calgary, Alta.....	1893	249,641	Port Arthur, Ont.....	1907	45,276
Chicoutimi, Que.....	1930	31,657	Quebec, Que.....	1832	171,979
Chomedey, Que.....	1961	30,445	Regina, Sask.....	1903	112,141
Cornwall, Ont.....	1945	43,639	Saint John, N.B.....	1785	55,153
Dartmouth, N.S.....	1961	46,966	St. Boniface, Man.....	1908	37,600
Edmonton, Alta.....	1904	281,027	St. Catharines, Ont.....	1876	84,472
Fort William, Ont.....	1907	45,214	St. James, Man.....	1956	33,977
Granby, Que.....	1916	31,463	St. John's, Nfld.....	1888	63,633
Guelph, Ont.....	1879	39,838	St. Laurent, Que.....	1955	49,805
Halifax, N.S.....	1841	92,511	St. Michel, Que.....	1952	55,978
Hamilton, Ont.....	1846	273,991	Sarnia, Ont.....	1914	50,976
Hull, Que.....	1875	56,929	Saskatoon, Sask.....	1906	95,526
Jacques Cartier, Que.....	1951	40,807	Sault Ste. Marie, Ont.....	1912	43,088
Jasper Place, Alta. (town)...	1950	30,530	Shawinigan, Que.....	1921	32,169
Kingston, Ont.....	1846	53,526	Sherbrooke, Que.....	1875	66,554
Kitchener, Ont.....	1912	74,485	Sudbury, Ont.....	1930	80,120
Lachine, Que.....	1909	38,630	Sydney, N.S.....	1904	33,617
LaSalle, Que.....	1958	30,904	Toronto, Ont.....	1834	672,407
Lethbridge, Alta.....	1906	35,454	Trois Rivières, Que.....	1857	53,477
London, Ont.....	1855	169,569	Vancouver, B.C.....	1886	384,522
Moncton, N.B.....	1890	43,840	Verdun, Que.....	1912	78,317
Montreal, Que.....	1832	1,191,062	Victoria, B.C.....	1862	54,941
Montreal North, Que.....	1959	48,433	Welland, Ont.....	1917	36,079
Moose Jaw, Sask.....	1903	33,206	Windsor, Ont.....	1892	114,367
New Westminster, B.C.....	1860	33,654	Winnipeg, Man.....	1873	265,429
Oshawa, Ont.....	1924	62,415			

5.—Populations of Census Metropolitan Areas, Census 1961

Metropolitan Area	Population	Metropolitan Area	Population
	No.		No.
Montreal, Que.....	2,109,509	Windsor, Ont.....	193,365
Toronto, Ont.....	1,824,481	Halifax, N.S.....	183,946
Vancouver, B.C.....	790,165	London, Ont.....	181,283
Winnipeg, Man.....	475,989	Kitchener, Ont.....	154,864
Ottawa, Ont.....	429,750	Victoria, B.C.....	154,152
Hamilton, Ont.....	395,189	Sudbury, Ont.....	110,694
Quebec, Que.....	357,568	Saint John, N.B.....	95,563
Edmonton, Alta.....	337,568	St. John's, Nfld.....	90,838
Calgary, Alta.....	279,062		

6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over, by Province, Census 1961

Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation
No.		No.		No.	
Newfoundland—		Nova Scotia—concluded		Quebec—continued	
Cities—		Towns—concluded		Cities—concluded	
St. John's.....	63,633	Shelburne.....	2,408	Westmount.....	25,012
Corner Brook.....	25,185	Digby.....	2,308	St. Jérôme.....	24,546
Towns—		Inverness.....	2,109	Longueuil.....	24,131
Wabana.....	8,026	Middleton.....	1,921	Pointe Claire.....	22,709
Stephenville.....	6,043	Parrsboro.....	1,834	Pointe Hyacinthe.....	22,354
Gander.....	5,725	Oxford.....	1,471	St. Hyacinthe aux Trembles.....	21,926
Windsor.....	5,505	Louisburg.....	1,417	Thetford Mines.....	21,618
Carbonear.....	4,234	Hantsport.....	1,381	Rouyn.....	18,716
Channel-Port aux		Port Hawkesbury.....	1,346	Dorval.....	18,592
Basques.....	4,141	Berwick.....	1,282	Joliette.....	18,088
Deer Lake.....	3,998	Lockeport.....	1,231	Sorel.....	17,147
Botwood.....	3,680	Canso.....	1,151	Pont Visu.....	16,077
Mount Pearl.....	2,785	Mulgrave.....	1,145	Grand Mère.....	15,806
Grand Bank.....	2,703	Mahone Bay.....	1,103	Lévis.....	15,112
Lewisporte.....	2,702	Bridgetown.....	1,043	St. Lambert.....	14,531
Harbour Grace.....	2,650	Stewiacke.....	1,042	Arvida.....	14,460
Stephenville Crossing.....	2,209			Charlesbourg.....	14,308
St. Lawrence.....	2,095	New Brunswick—		Sept Îles.....	14,196
St. Anthony.....	1,820	Cities—		Sillery.....	14,109
Marystown.....	1,691	Saint John.....	55,153	Alma.....	13,309
Placentia.....	1,610	Moncton.....	43,840	Côte St. Luc.....	13,266
Clarenceville.....	1,541	Fredericton.....	19,683	Magog.....	13,139
Burgeo.....	1,454	Lancaster.....	13,848	Kénogami.....	11,816
Freshwater.....	1,396	Edmundston.....	12,791	St. Thérèse.....	11,771
Fortune.....	1,360	Campbellton.....	9,873	Laizon.....	11,533
Bay Roberts.....	1,328	Towns—		Noranda.....	11,477
Wesleyville.....	1,285	Oromocto.....	12,170	Chicoutimi N.....	11,229
Glovertown.....	1,197	Chatham.....	7,109	Lafleche.....	10,984
Fogo.....	1,152	Dalhousie.....	5,856	Rivière du Loup.....	10,835
Burin.....	1,144	Bathurst.....	5,494	Giffard.....	10,129
Catalina.....	1,110	Newcastle.....	5,236	Beauharnois.....	8,704
Harbour Breton.....	1,076	Woodstock.....	4,305	Roberval.....	7,739
Prince Edward Island—		Dieppe.....	4,032	Farnham.....	6,354
Cities—		Grand Falls.....	3,983	Towns—	
Charlottetown.....	18,318	Sussex.....	3,457	Mont Royal.....	21,182
Towns—		St. Stephen.....	3,380	Laval des Rapides.....	19,227
Summerside.....	8,611	Marysville.....	3,233	Victoriaville.....	18,720
Souris.....	1,537	Sackville.....	3,038	Rimouski.....	17,739
Montague.....	1,126	Shediac.....	2,159	St. Hubert.....	14,380
Villages—		Milltown.....	1,892	La Tuque.....	13,023
Parkdale.....	1,735	St. Leonard.....	1,666	Gatineau.....	13,022
Sherwood.....	1,580	Shippegan.....	1,621	Pierrefonds.....	12,171
St. Eleanor's.....	1,002	St. Andrews.....	1,531	St. Vincent de Paul.....	11,214
Nova Scotia—		St. George.....	1,133	Asbestos.....	11,083
Cities—		Hartland.....	1,025	Val d'Or.....	10,983
Halifax.....	92,511	Quebec—		Duvernay.....	10,939
Dartmouth.....	46,966	Cities—		Beaconsfield.....	10,064
Sydney.....	33,617	Montreal.....	1,191,062	Rivière des Prairies.....	10,054
Towns—		Quebec.....	171,979	Anjou.....	9,511
Glace Bay.....	24,186	Verdun.....	78,317	Beauport.....	9,192
Truro.....	12,421	Sherbrooke.....	66,554	Matane.....	9,190
Amherst.....	10,788	Hull.....	56,929	Repentigny.....	9,139
New Waterford.....	10,592	St. Michel.....	55,978	Port Alfred.....	9,066
New Glasgow.....	9,782	Trois Rivières.....	53,477	Pointe Gatineau.....	8,854
Sydney Mines.....	9,122	St. Laurent.....	49,805	Quebec W.....	8,733
North Sydney.....	8,636	Montreal N.....	48,433	Tracy.....	8,171
Yarmouth.....	5,836	Jacques Cartier.....	40,807	LeMoynes.....	8,057
Springhill.....	5,327	Lachine.....	38,630	Baie Comeau.....	7,956
Stellarton.....	5,327	Shawinigan.....	32,169	Greenfield Park.....	7,807
Kentville.....	4,612	Chicoutimi.....	31,657	Châteauguay Centre.....	7,591
Pictou.....	4,534	Granby.....	31,463	Iberville.....	7,588
Bridgewater.....	4,497	LaSalle.....	30,904	Ste. Rose.....	7,571
Antigonish.....	4,344	Outremont.....	30,753	Châteauguay.....	7,570
Westville.....	4,159	Chomedey.....	30,445	Lachute.....	7,560
Windsor.....	3,823	Ste. Foy.....	29,716	Buckingham.....	7,421
Liverpool.....	3,712	Jonquière.....	28,588	Boucherville.....	7,403
Trenton.....	3,140	Drummondville.....	27,909	La Prairie.....	7,328
Lunenburg.....	3,056	Valleyfield.....	27,297	St. Eustache sur le Lac.....	7,274
Dominion.....	2,999	(Salaberry de).....	26,988	Cowansville.....	7,050
Wolfville.....	2,413	St. Jean.....	26,988	Lac Mégantic.....	7,015
		Cap de la Madeleine.....	26,925	Malartic.....	6,998
				Coaticook.....	6,906

**6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,
by Province, Census 1961—continued**

Province and Incorporated Centre	Popu- lation No.	Province and Incorporated Centre	Popu- lation No.	Province and Incorporated Centre	Popu- lation No.
Quebec—continued		Quebec—continued		Quebec—continued	
Towns—continued		Towns—concluded		Villages—continued	
Montmagny.....	6,850	Ile Perrot.....	3,106	L'Epiphanie.....	2,663
St. Pierre.....	6,795	Arthabaska.....	2,977	St. Marc des Carrières.....	2,622
St. Bruno de Montar- ville.....	6,760	Murdochville.....	2,951	Beaupré.....	2,557
Windsor.....	6,589	Bedford.....	2,855	Bois des Filion.....	2,499
Plessisville.....	6,570	Bromptonville.....	2,726	St. Joseph (Beauce Co.).....	2,454
Loretteville.....	6,522	Pincourt.....	2,685	Rawdon.....	2,388
Montreal W.....	6,446	Auteuil.....	2,603	Sayabec.....	2,314
Maniwaki.....	6,349	Gaspé.....	2,603	Lac Etchemin.....	2,297
Roxboro.....	6,295	La Malbaie.....	2,580	Varennes.....	2,240
Aylmer.....	6,286	Danville.....	2,552	St. Pascal.....	2,144
Beloeil.....	6,283	Temiscaming.....	2,517	St. Césaire.....	2,097
Terrebonne.....	6,207	Warwick.....	2,457	Deschênes.....	2,090
Mont Joli.....	6,175	St. Geneviève.....	2,367	McMasterville.....	2,075
Rosemère.....	6,158	Chapais.....	2,363	Drummondville W.....	2,057
Amos.....	6,080	St. René.....	2,276	St. Jacques.....	2,035
Dolbeau.....	6,052	Delson.....	2,075	Cap Chat.....	2,035
Montmorency.....	5,985	Isle Maligne.....	2,070	St. Thècle.....	2,009
Hauterive.....	5,980	Rigaud.....	1,990	Contrecoeur.....	2,007
Montreal E.....	5,884	Fort Chambly.....	1,987	Ferme Neuve.....	1,971
Mont Laurier.....	5,859	Desbiens.....	1,970	St. Jérôme.....	1,992
St. Agathe des Monts.....	5,725	Léry.....	1,957	Masson.....	1,933
Bagotville.....	5,629	Villeneuve.....	1,934	St. Anne de Beaupré.....	1,878
St. Eustache.....	5,463	Beauceville E.....	1,929	Normandin.....	1,898
Laval W.....	5,440	Gagnon.....	1,900	Fort Coulonge.....	1,823
St. Dorothée.....	5,297	Laurentides.....	1,868	Napierville.....	1,812
Fabreville.....	5,213	Beauceville.....	1,845	St. Emile.....	1,806
St. Félicien.....	5,133	Macamic.....	1,614	St. Georges (Champlain Co.).....	1,775
St. François.....	5,122	Rock Island.....	1,608	Verchères.....	1,768
Dorion.....	4,996	Forestville.....	1,526	Sutton.....	1,755
St. Léonard de Port Maurice.....	4,893	Cookshire.....	1,412	La Gadeloupe.....	1,725
Donnacona.....	4,812	Maple Grove.....	1,412	Ville Marie.....	1,710
Chibougamau.....	4,765	Val St. Michel.....	1,260	St. Basile S.....	1,709
East Angus.....	4,556	Dollard des Ormeaux.....	1,248	St. Sauveur des Monts.....	1,702
St. Georges W.....	4,553	Châteauguay Heights.....	1,231	Notre Dame du Lac.....	1,665
La Petite Rivière.....	4,507	Cadillac.....	1,077	Hudson.....	1,671
Courville.....	4,670	Château d'Eau.....	1,057	Melchville.....	1,696
Hampstead.....	4,557	Candiac.....	1,050	Richelieu.....	1,612
Waterloo.....	4,543	Scotstown.....	1,038	Notre Dame d'Hébertville.....	1,604
Naudville.....	4,475	Prévile.....	1,001	Rimouski E.....	1,581
L'Assomption.....	4,448	Villages.....		St. Ambroise.....	1,576
Nicolet.....	4,441	Shawinigan S.....	12,653	St. Jean de Boischatel.....	1,576
Trois Pistoles.....	4,340	Baie St. Paul.....	4,674	Pierreville.....	1,559
Orsainville.....	4,326	Rivière du Moulin.....	4,356	Lafontaine.....	1,556
Black Lake.....	4,180	La Providence.....	4,251	Lac au Saumon.....	1,548
St. Elzéar.....	4,150	Charny.....	4,139	Hudson Heights.....	1,540
Louiseville.....	4,135	Notre Dame de Lorette.....	3,961	St. Joseph de la Rivière Bleue.....	1,540
Les Saules.....	4,098	St. Joseph (St. Hyacinthe).....	3,799	Shawville.....	1,534
St. Georges (Beauce Co.).....	4,052	Amqui.....	3,689	Ormstown.....	1,527
Richmond.....	4,072	Brownburg.....	3,617	L'Isle Verte.....	1,517
St. Anne de Bellevue.....	4,044	Causapscal.....	3,463	Montebello.....	1,486
Acton Vale.....	3,957	St. Gabriel de Brandon.....	3,425	St. Pie.....	1,424
La Sarre.....	3,944	Thurso.....	3,370	Weedon Centre.....	1,426
St. Raymond.....	3,931	Princeville.....	3,174	Luceville.....	1,419
Marieville.....	3,890	Clermont.....	3,114	Vallée Jonction.....	1,405
Brossard.....	3,778	Price.....	3,094	St. Félix de Valois.....	1,399
Chambly.....	3,737	St. Anne de la Pocatière.....	3,086	Knowlton.....	1,396
Berthierville.....	3,708	Disraeli.....	3,079	St. Casimir.....	1,386
Lennoxville.....	3,699	Charlemagne.....	3,068	Notre Dame de Port- neuf.....	1,380
St. Marie.....	3,662	St. Antoine des Laurentides.....	3,005	Beebe Plain.....	1,363
St. Joseph de Sorel.....	3,588	Pont Rouge.....	2,988	St. Croix.....	1,363
Baie d'Urfe.....	3,549	Templeton.....	2,965	St. Zacharie.....	1,361
Mistassini.....	3,461	Ayersville.....	2,957	Chute aux Outardes.....	1,336
Port Cartier.....	3,453	St. Hilaire.....	2,911	Pointe au Pic.....	1,331
Chandler.....	3,406	St. Jean Eudes.....	2,73	St. Adèle.....	1,331
Bourlamaque.....	3,344	Bernierville.....	2,706	Grenville.....	1,330
St. Tite.....	3,250	Cabano.....	2,685	Waterville.....	1,330
Senneterre.....	3,246	St. Jovite.....	2,692	Crabtree.....	1,313
Schefferville.....	3,178				
Huntingdon.....	3,134				

**6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,
by Province, Census 1961—continued**

Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation
	No.		No.		No.
Quebec—concluded		Ontario—continued		Ontario—continued	
Villages—concluded		Cities—concluded		Towns—continued	
St. Cœur de Marie.....	1,302	Guelph.....	39,838	Grimsby.....	5,148
Papineauville.....	1,300	Welland.....	36,079	Gananoque.....	5,096
Parent.....	1,298	Belleville.....	30,655	New Liskeard.....	4,896
Deschailons sur		Chatham.....	29,826	Pictou.....	4,862
St. Laurent.....	1,283	Galt.....	27,830	Carleton Place.....	4,796
Linéère.....	1,269	North Bay.....	23,781	Aylmer.....	4,705
Senneville.....	1,262	St. Thomas.....	22,469	Orangeville.....	4,593
Hébertville Station.....	1,257	Niagara Falls.....	22,351	Cochrane.....	4,521
Ste. Rosalie.....	1,255	Waterloo.....	21,366	Hespeler.....	4,519
St. Pacôme.....	1,242	Barrie.....	21,169	Napanee.....	4,500
Labelle.....	1,224	Woodstock.....	20,486	St. Mary's.....	4,482
Tring Junction.....	1,214	Stratford.....	20,467	Tecumseh.....	4,476
Barraute.....	1,199	Owen Sound.....	17,421	Amherstburg.....	4,452
St. Siméon.....	1,197			Hanover.....	4,401
Chambord.....	1,188	Towns—		Acton.....	4,144
Lacolle.....	1,187	Burlington.....	47,008	Blind River.....	4,093
Yamachiche.....	1,186	Timmins.....	29,270	Listowel.....	4,002
La Pêrade.....	1,184	Eastview.....	24,555	Walkerton.....	3,851
L'Isletville.....	1,184	Leaside.....	18,579	Meaford.....	3,834
St. André E.....	1,183	Brampton.....	18,467	Fergus.....	3,831
Bic.....	1,177	Mimico.....	18,212	Petrolia.....	3,708
Grande Rivière.....	1,176	Riverside.....	18,089	Copper Cliff.....	3,600
St. Bruno.....	1,158	Brockville.....	17,744	Clinton.....	3,491
Robertsonville.....	1,156	Pembroke.....	16,791	Campbellford.....	3,478
St. Cyrille.....	1,138	Richmond Hill.....	16,446	Essex.....	3,428
East Broughton		Orillia.....	15,345	Delhi.....	3,427
Station.....	1,136	Port Colborne.....	14,886	Geraldton.....	3,375
St. Raphaël.....	1,134	Whitby.....	14,685	Elmira.....	3,337
St. Anselme.....	1,131	New Toronto.....	13,384	Mattawa.....	3,314
St. Noël.....	1,124	Trenton.....	13,183	Almonte.....	3,267
Val David.....	1,118	Dundas.....	12,912	Lively.....	3,211
St. Agapitville.....	1,117	Preston.....	11,577	Huntsville.....	3,189
Stanstead Plain.....	1,116	Lindsay.....	11,399	Levack.....	3,178
Sacré Cœur de Jésus.....	1,108	Kenora.....	10,904	Blenheim.....	3,151
Omerville.....	1,094	Cobourg.....	10,646	Gravenhurst.....	3,077
St. Fulgence.....	1,094	Oakville.....	10,366	Port Dover.....	3,064
Baie de Shawinigan.....	1,085	Georgetown.....	10,298	Exeter.....	3,047
Tadoussac.....	1,083	Weston.....	9,715	Kingsville.....	3,041
St. Denis.....	1,066	Smith's Falls.....	9,603	Rockland.....	3,037
St. Félix.....	1,063	Fort Frances.....	9,481	Tilbury.....	3,030
Deschambault.....	1,056	Leamington.....	9,030	Capreol.....	3,003
L'Annonciation.....	1,042	Fort Erie.....	9,027	Bracebridge.....	2,927
St. Rédempteur.....	1,035	Renfrew.....	8,935	Wingham.....	2,922
Lavaltrie.....	1,034	Newmarket.....	8,932	Alliston.....	2,884
Shawbridge.....	1,034	Aurora.....	8,791	Kincardine.....	2,841
La Station du Coteau.....	1,032	Simcoe.....	8,754	Niagara.....	2,712
Campbell's Bay.....	1,024	Hawkesbury.....	8,661	Coniston.....	2,692
St. Ulric.....	1,021	Midland.....	8,656	Haileybury.....	2,638
St. Germain de Grant.....	1,015	Thorold.....	8,633	Mount Forest.....	2,623
St. Honoré.....	1,009	Collingwood.....	8,385	Ridgetown.....	2,603
St. Timothée.....	1,003	Port Hope.....	8,091	Alexandria.....	2,597
		Wallaceburg.....	7,881	Chelmsford.....	2,559
		Ajax.....	7,755	Sioux Lookout.....	2,453
		Bowmanville.....	7,397	Hearst.....	2,373
		Port Credit.....	7,203	Dresden.....	2,346
		Ingersoll.....	6,874	Bradford.....	2,342
		Kapuskasing.....	6,870	Uxbridge.....	2,316
		Tillsonburg.....	6,600	Seaforth.....	2,255
		Goderich.....	6,411	Mitchell.....	2,247
		Sturgeon Falls.....	6,288	Waterford.....	2,221
		Stoney Creek.....	6,043	Cobalt.....	2,209
		Parry Sound.....	6,004	Caledonia.....	2,198
		Paris.....	5,820	Keewatin.....	2,197
		Dryden.....	5,728	Forest.....	2,188
		Milton.....	5,629	Durham.....	2,180
		Arnprior.....	5,474	Warton.....	2,138
		Deep River.....	5,377	Southampton.....	1,818
		Prescott.....	5,366	Deseronto.....	1,797
		Perth.....	5,360	Harrow.....	1,787
		Espanola.....	5,353	Englehart.....	1,786
		Penetanguishene.....	5,340	Vankleek Hill.....	1,735
		Dunnville.....	5,181	Thessalon.....	1,725
		Strathroy.....	5,150		
Ontario—					
Cities—					
Toronto.....	672,407				
Hamilton.....	273,991				
Ottawa.....	268,206				
London.....	169,569				
Windsor.....	114,367				
St. Catharines.....	84,472				
Sudbury.....	80,120				
Kitchener.....	74,485				
Oshawa.....	62,415				
Brantford.....	55,201				
Kingston.....	53,526				
Sarnia.....	50,976				
Peterborough.....	47,185				
Fort Arthur.....	45,276				
Fort William.....	45,214				
Cornwall.....	43,639				
Sault Ste. Marie.....	43,088				

6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,
by Province, Census 1961—continued

Province and Incorporated Centre	Popu- lation No.	Province and Incorporated Centre	Popu- lation No.	Province and Incorporated Centre	Popu- lation No.
Ontario—continued		Ontario—concluded		Saskatchewan—concluded	
Towns—concluded		Villages—concluded		Cities—concluded	
Chesley.....	1,697	Alfred.....	1,195	Yorkton.....	9,995
Iroquois Falls.....	1,681	L'Orignal.....	1,189	Weyburn.....	9,101
Stayner.....	1,671	Glencoe.....	1,156	Estevan.....	7,728
Port Elgin.....	1,632	Iroquois.....	1,136	Melville.....	5,191
Harriston.....	1,631	Chalk River.....	1,135	Lloydminster	
Palmerston.....	1,554	Milverton.....	1,111	(pt., total 5,667).....	2,723
Little Current.....	1,527	Markdale.....	1,090	Towns—	
Massey.....	1,324	West Lorne.....	1,070	Melfort.....	4,039
Parkhill.....	1,169	Victoria Harbour.....	1,066	Nipawin.....	3,836
Rainy River.....	1,168	Wellington.....	1,064	Humboldt.....	3,245
Smooth Rock Falls.....	1,131	Norwood.....	1,060	Kindersley.....	2,990
Thornbury.....	1,097	Thamesville.....	1,054	Kamsack.....	2,968
Powassan.....	1,064	Port McNicoll.....	1,053	Meadow Lake.....	2,803
Villages—		South River.....	1,044	Biggar.....	2,702
Forest Hill.....	20,480	Rodney.....	1,041	Assiniboia.....	2,491
Long Branch.....	11,039	Lucknow.....	1,031	Rosetown.....	2,450
Swansea.....	9,628	Cannington.....	1,024	Tisdale.....	2,402
Streetsville.....	5,056	Ayr.....	1,016	Maple Creek.....	2,291
Petaawawa.....	4,509	Athens.....	1,015	Shaunavon.....	2,154
Markham.....	4,294	Erin.....	1,005	Canora.....	2,117
Chippawa.....	3,256			Unity.....	1,902
Stouffville.....	3,188	Manitoba—		Indian Head.....	1,802
Point Edward.....	2,744	Cities—		Moosomin.....	1,781
Bancroft.....	2,615	Winnipeg.....	265,429	Creston.....	1,729
Beausville.....	2,537	St. Boniface.....	37,600	Eston.....	1,695
Brighton.....	2,403	St. James.....	33,977	Wynyard.....	1,686
Fonthill.....	2,324	Brandon.....	28,166	Battleford.....	1,627
Woodbridge.....	2,315	East Kildonan.....	27,305	Wilkie.....	1,612
Port Perry.....	2,262	West Kildonan.....	20,077	Hudson Bay.....	1,601
New Hamburg.....	2,181	Portage la Prairie.....	12,388	Fort Qu'Appelle.....	1,521
Lakefield.....	2,167	Towns—		Gravelbourg.....	1,499
Bolton.....	2,104	Transcona.....	14,248	Watrous.....	1,461
Rockcliffe Park.....	2,084	Flin Flon.....	11,104	Oxbow.....	1,359
Hagersville.....	2,075	Selkirk.....	8,576	Outlook.....	1,340
Kemptville.....	1,959	Dauphin.....	7,374	Wadena.....	1,311
Cardinal.....	1,944	The Pas.....	4,671	Rosthern.....	1,264
Crystal Beach.....	1,886	Steinbach.....	3,739	Grenfell.....	1,256
Belle River.....	1,854	Neepawa.....	3,197	Kerrobert.....	1,220
Waterdown.....	1,844	Swan River.....	3,163	Leader.....	1,211
Morrisburg.....	1,820	Morden.....	2,793	Esterhazy.....	1,114
Tweed.....	1,791	Virten.....	2,708	Radville.....	1,067
Pickering.....	1,755	Winkler.....	2,529	Shellbrook.....	1,042
Norwich.....	1,703	Minnedosa.....	2,211	Gull Lake.....	1,038
Bridgeport.....	1,672	Altona.....	2,026	Wolseley.....	1,031
Frankford.....	1,642	Carman.....	1,930	Broadview.....	1,008
Eganville.....	1,549	Gimli.....	1,841	Herbert.....	1,008
Stittsville.....	1,508	Souris.....	1,841		
Elora.....	1,486	Beauséjour.....	1,770	Alberta—	
Sutton.....	1,470	Killarney.....	1,729	Cities—	
Port Stanley.....	1,460	Tuxedo.....	1,627	Edmonton.....	281,027
St. Clair Beach.....	1,460	Rivers.....	1,574	Calgary.....	249,641
Barry's Bay.....	1,439	Stonewall.....	1,420	Lethbridge.....	35,454
Winchester.....	1,429	Morris.....	1,370	Medicine Hat.....	24,484
Marmora.....	1,381	Boissevain.....	1,303	Red Deer.....	19,612
Wheatley.....	1,362	Russell.....	1,263	Grande Prairie.....	8,352
Fenelon Falls.....	1,359	Carberry.....	1,113	Camrose.....	6,939
Madoc.....	1,347	Grandview.....	1,057	Wetaskiwin.....	5,300
Colborne.....	1,336	Melita.....	1,038	Lloydminster	
Stirling.....	1,315	Villages—		(pt., total 5,667).....	2,944
Watford.....	1,293	Brooklands.....	4,369	Drumheller.....	2,931
Casselman.....	1,277	Roblin.....	1,368	Towns—	
Newcastle.....	1,272			Jasper Place.....	30,530
Havelock.....	1,260	Saskatchewan—		Forest Lawn.....	12,263
Chesterville.....	1,248	Cities—		Bowness.....	9,184
Shelburne.....	1,239	Regina.....	112,141	Beverly.....	9,041
Tavistock.....	1,232	Saskatoon.....	95,526	Montgomery.....	5,077
Beaverton.....	1,217	Moose Jaw.....	33,206	St. Albert.....	4,059
Richmond.....	1,215	Prince Albert.....	24,168	Taber.....	3,951
Bobcaygeon.....	1,210	Swift Current.....	12,186	Ponoka.....	3,938
Arthur.....	1,200	North Battleford.....	11,230		

**6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,
by Province, Census 1961—concluded**

Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation	Province and Incorporated Centre	Popu- lation
No.		No.		No.	
Alberta—continued		Alberta—concluded		British Columbia—concl.	
Towns—continued		Towns—concluded		Cities—concluded	
Drayton Valley.....	3,854	Didsbury.....	1,254	Courtenay.....	3,485
Stettler.....	3,638	McMurray ¹	1,186	Fernie.....	2,661
Hinton.....	3,529	Redwater.....	1,135	Langley.....	2,365
Wainwright.....	3,351	Bow Island.....	1,122	Grand Forks.....	2,347
Edson.....	3,198	Grimshaw.....	1,095	Armstrong.....	1,288
Lacombe.....	3,029	McLennan.....	1,078	Enderby.....	1,075
Fort Saskatchewan.....	2,972	Valleyview.....	1,077	Towns—	
Pincher Creek.....	2,961	Nanton.....	1,054	Quesnel.....	4,673
Vegreville.....	2,908	Black Diamond.....	1,043	Fort St. John.....	3,619
Brooks.....	2,827	Okotoks.....	1,043	Mission City.....	3,251
St. Paul.....	2,823	Viking.....	1,043	Villages—	
Cardston.....	2,801	Castor.....	1,025	North Kamloops.....	6,456
Hanna.....	2,645	Provost.....	1,022	Campbell River.....	3,737
Coaldale.....	2,592	Villages—		Merritt.....	3,039
Peace River.....	2,543	Bellevue.....	1,323	Hope.....	2,751
Fort Macleod.....	2,490	Whitecourt.....	1,054	Smithers.....	2,487
Vermilion.....	2,449			Creston.....	2,460
Olds.....	2,433	British Columbia—		Castlegar.....	2,253
Raymond.....	2,362	Cities—		Warfield.....	2,212
Rocky Mountain		Vancouver.....	384,522	Ladysmith.....	2,173
House.....	2,360	Victoria.....	54,941	Princeton.....	2,163
Leduc.....	2,356	New Westminster.....	33,654	Lake Cowichan.....	2,149
Barrhead.....	2,286	North Vancouver.....	23,656	Kinnaird.....	2,123
High River.....	2,276	Nanaimo.....	14,135	Williams Lake.....	2,120
Innisfail.....	2,270	Prince George.....	13,877	Golden.....	1,776
Redcliff.....	2,221	Penticton.....	13,859	Oliver.....	1,774
Clareholm.....	2,143	Kelowna.....	13,188	Comox.....	1,756
Blairmore.....	1,980	Prince Rupert.....	11,987	Sidney.....	1,558
Westlock.....	1,838	Trail.....	11,580	Squamish.....	1,557
High Prairie.....	1,756	Port Alberni.....	11,560	Salmon Arm.....	1,506
Bonnyville.....	1,736	Dawson Creek.....	10,946	Vanderhoof.....	1,460
Coleman.....	1,713	Vernon.....	10,250	Lillooet.....	1,304
Fairview.....	1,506	Kamloops.....	10,076	Cumberland.....	1,303
Grand Centre.....	1,493	Chilliwack.....	8,259	Parksville.....	1,183
Three Hills.....	1,491	Port Coquitlam.....	8,111	Gibson's Landing.....	1,091
Athabasca.....	1,487	Nelson.....	7,074	Fort St. James.....	1,081
Devon.....	1,418	White Rock.....	6,453	Marysville.....	1,057
Sylvan Lake.....	1,381	Kimberley.....	6,013	Burns Lake.....	1,041
Magrath.....	1,338	Cranbrook.....	5,549	Fruitvale.....	1,032
Lac La Biche.....	1,311	Port Moody.....	4,789	Osoyoos.....	1,022
Stony Plain.....	1,310	Alberni.....	4,616		
Vulcan.....	1,307	Rosland.....	4,354	Yukon—	
Cold Lake.....	1,307	Duncan.....	3,726	City—	
Rimbey.....	1,266	Revelstoke.....	3,624	Whitehorse.....	5,031

¹ Officially Fort McMurray from June 1, 1962.

7.—Male and Female Populations, by Age Group, Census 1961

Age Group	Male	Female	Age Group	Male	Female
No.		No.	No.		No.
0 - 4 years.....	1,154,091	1,102,310	55 - 59 years.....	362,145	343,690
5 - 9 ".....	1,063,840	1,015,682	60 - 64 ".....	292,569	291,066
10 - 14 ".....	948,160	907,839	65 - 69 ".....	239,685	247,417
15 - 19 ".....	729,035	703,524	70 - 74 ".....	196,076	206,099
20 - 24 ".....	587,139	596,507	75 - 79 ".....	134,186	140,051
25 - 29 ".....	613,897	595,400	80 - 84 ".....	69,046	77,771
30 - 34 ".....	644,407	627,403	85 - 89 ".....	27,178	33,606
35 - 39 ".....	631,072	639,852	90 years or over.....	7,946	12,093
40 - 44 ".....	559,996	558,965			
45 - 49 ".....	515,516	499,800			
50 - 54 ".....	442,909	420,279			
			Totals.....	9,218,893	9,019,354

8.—Sex Distribution of the Population, by Province, Census 1961

Province	Male	Female	Province or Territory	Male	Female
No.	No.	No.	No.	No.	No.
Newfoundland.....	234,924	222,929	Saskatchewan.....	479,564	445,617
Prince Edward Island....	53,357	51,272	Alberta.....	689,383	642,561
Nova Scotia.....	374,244	362,763	British Columbia.....	829,094	799,988
New Brunswick.....	302,440	295,496	Yukon Territory.....	8,178	6,450
Quebec.....	2,631,856	2,627,355	Northwest Territories....	12,822	10,176
Ontario.....	3,134,528	3,101,564			
Manitoba.....	468,503	453,183	Canada.....	9,218,893	9,019,354

9.—Origins of the Population by Province, Census 1961

Province or Territory	British Isles ¹	French	German	Italian	Jewish	Nether-lands	Polish
No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	428,899	17,171	1,829	246	180	462	243
Prince Edward Island..	83,501	17,418	664	103	15	1,288	82
Nova Scotia.....	525,448	87,883	45,441	3,719	1,672	25,251	3,106
New Brunswick.....	329,940	232,127	7,386	1,210	859	7,882	633
Quebec.....	567,057	4,241,354	39,457	108,552	74,677	10,442	30,790
Ontario.....	3,711,536	647,941	400,717	273,864	65,280	191,017	149,524
Manitoba.....	396,445	83,936	91,846	6,476	18,898	47,780	44,371
Saskatchewan.....	373,482	59,824	158,209	2,413	2,287	29,325	28,951
Alberta.....	601,755	83,319	183,314	15,025	4,353	55,530	40,539
British Columbia.....	966,881	66,970	118,926	38,399	5,113	60,176	24,870
Yukon Territory.....	6,946	991	1,092	200	—	349	241
Northwest Territories..	4,779	1,412	718	144	10	177	167
Canada.....	7,996,669	5,540,346	1,049,599	450,351	173,344	429,679	323,517
Russian	Scandi-navian ²	Ukrain-ian	Other Euro-pean	Asiatic	Indian and Eskimo	Total ³	
No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	67	1,201	141	785	933	1,411	457,853
Prince Edward Island..	14	427	66	200	295	236	104,629
Nova Scotia.....	804	5,731	1,763	7,244	2,979	3,271	737,007
New Brunswick.....	305	4,901	379	2,575	1,343	2,921	597,936
Quebec.....	13,694	11,295	16,588	96,112	14,801	21,343	5,259,211
Ontario.....	28,327	63,653	127,911	349,797	39,277	48,074	6,236,092
Manitoba.....	7,938	37,746	105,372	40,112	4,177	29,427	921,686
Saskatchewan.....	22,481	67,553	78,851	60,468	4,925	30,630	925,181
Alberta.....	17,952	95,879	105,923	72,274	12,503	28,554	1,331,944
British Columbia.....	27,448	96,792	35,640	80,378	40,299	38,814	1,629,082
Yukon Territory.....	101	773	345	861	152	2,207	14,628
Northwest Territories..	37	583	358	514	69	13,233	22,998
Canada.....	119,168	386,534	473,337	711,320	121,753	220,121	18,238,247

¹ Includes English, Irish, Scottish and Welsh.² Includes Danish, Icelandic, Norwegian and Swedish.³ Includes other and not stated.

10.—Principal Religious Denominations of the Population, Census 1961

Religious Denomination	Number	Religious Denomination	Number
Anglican.....	2,409,068	Presbyterian.....	818,558
Baptist.....	593,553	Roman Catholic.....	8,342,826
Greek Orthodox.....	239,766	Ukrainian (Greek) Catholic.....	189,653
Jewish.....	254,368	United Church.....	3,664,008
Lutheran.....	662,744	Other.....	767,374
Mennonite.....	152,452		
Pentecostal.....	143,877	Total.....	18,238,247

11.—Official Language and Mother Tongue, Census 1961

Province or Territory	Total Population	Official Language ¹				Mother Tongue ²		
		English Only	French Only	English and French	Neither English nor French	English	French	Other
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	457,853	450,945	522	5,299	1,087	451,530	3,150	3,173
Prince Edward Island.....	104,629	95,296	1,219	7,938	176	95,564	7,958	1,107
Nova Scotia.....	737,007	684,805	5,938	44,987	1,277	680,233	39,568	17,206
New Brunswick.....	597,936	370,922	112,054	113,495	1,465	378,633	210,530	8,773
Quebec.....	5,259,211	608,635	3,254,850	1,338,878	56,848	697,402	4,269,689	292,120
Ontario.....	6,236,092	5,548,766	95,236	493,270	98,820	4,834,623	425,302	976,167
Manitoba.....	921,686	825,955	7,954	68,368	19,409	584,526	60,899	276,261
Saskatchewan.....	925,181	865,821	3,853	42,074	13,433	638,156	36,163	250,862
Alberta.....	1,331,944	1,253,824	5,534	56,920	15,666	962,319	42,276	327,349
British Columbia.....	1,629,082	1,552,560	2,559	57,504	16,459	1,318,498	26,179	284,405
Yukon Territory.....	14,628	13,679	38	825	86	10,869	443	3,316
Northwest Territories.....	22,998	13,554	109	1,614	7,721	8,181	994	13,823
Canada.....	18,238,247	12,284,762	3,489,866	2,231,172	232,447	10,660,534	5,123,151	2,454,562

¹ Population speaking one, both or neither of the official languages and still understood.

² Language first spoken in childhood

12.—Annual Estimates of Population, by Province, as at June 1, 1951-62

NOTE.—At every census the previous post-censal estimates, made at June 1 each year, are adjusted to the newly recorded population figures. Figures for 1951, 1956 and 1961 are census figures. Figures for 1867-1904 will be found in the 1936 Year Book, p. 141; for 1905-30 in the 1946 edition, p. 127; for 1931-40 in the 1952-53 edition, p. 143; and for 1941-50 in the 1961 edition, p. 165.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Yukon	N.W.T.	Canada
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1951.....	361	98	643	516	4,056	4,598	776	832	939	1,165	9	16	14,009
1952.....	374	100	653	526	4,174	4,788	798	843	973	1,205	9	16	14,459
1953.....	383	101	663	533	4,269	4,941	809	861	1,012	1,248	9	16	14,845
1954.....	395	101	673	540	4,388	5,115	823	873	1,057	1,295	10	17	15,287
1955.....	406	100	683	547	4,517	5,266	839	878	1,091	1,342	11	18	15,698
1956.....	415	99	695	555	4,628	5,405	850	881	1,123	1,399	12	19	16,061
1957.....	424	99	701	562	4,769	5,636	862	880	1,164	1,482	12	19	16,610
1958.....	432	100	709	571	4,904	5,821	875	891	1,206	1,538	13	20	17,080
1959.....	441	101	719	582	5,024	5,969	891	907	1,248	1,567	13	21	17,483
1960.....	448	103	727	589	5,142	6,111	906	915	1,291	1,602	14	22	17,870
1961.....	458	105	737	598	5,259	6,236	922	925	1,332	1,629	14	23	18,238
1962.....	470	106	746	607	5,366	6,342	935	930	1,370	1,659	15	24	18,570

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NOTE.—This Index does not include references to Special Articles published in previous editions of the Year Book. These are listed at pp. 1170-1175.

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